

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION

BRENT NIX, et al.,)	
)	
Plaintiffs,)	
)	
v.)	No. 7:17-CV-189-D
)	
THE CHEMOURS COMPANY FC,)	
)	
)	
Defendants.)	
)	
ROGER MORTON, et al.,)	
)	
Plaintiffs,)	
)	
v.)	No. 7:17-CV-197-D
)	
THE CHEMOURS COMPANY, et al.,)	
)	
)	
Defendants.)	
)	
VICTORIA CAREY et al.,)	
)	
Plaintiffs,)	
)	
v.)	No. 7:17-CV-201-D
)	
E.I. DU PONT DE NEMOURS AND)	
COMPANY, et al.,)	
)	
Defendants.)	

ORDER

On May 18, 2022, Victoria Carey (“Carey”), Marie Burris (“Burris”), Michael Kiser (“Kiser”), and Brent Nix (“Nix”) (collectively, “plaintiffs”) moved for class certification [D.E. 334] and filed a memorandum of law [D.E. 334-1] and exhibits in support [D.E. 336]. On July 13, 2022, the E.I. Du Pont de Nemours and Company (“DuPont”) and The Chemours Company FC, LLC

(“Chemours”)(collectively, “defendants”) responded in opposition [D.E. 342]. On August 29, 2022, the plaintiffs replied [D.E. 385]. On September 26, 2022, defendants filed a sur-reply in opposition [D.E. 397]. On October 11, 2022, plaintiffs filed a sur-surreply [D.E. 401-1].

On July 13, 2022, defendants moved for partial judgment on the pleadings [D.E. 346] and filed a memorandum of support [D.E. 347]. On August 29, 2022, plaintiffs responded in opposition [D.E. 379]. On September 26, 2022, defendants replied [D.E. 396].

On July 13, 2022, defendants moved to exclude the expert testimony of Dr. David L. Sunding (“Sunding”) [D.E. 348], David L. Duncklee (“Duncklee”) [D.E. 354], R. Bruce Gamble (“Gamble”) [D.E. 356], Dr. Jamie C. DeWitt (“DeWitt”) and Dr. Richard DeGrandchamp (“DeGrandchamp”) [D.E. 357], and Dr. Kimberly A. Gray (“Gray”) and Roger W. Griffith (“Griffith”) [D.E. 359] and filed memoranda in support [D.E. 349, 353, 355, 358, 360]. On August 29, 2022, plaintiffs responded in opposition [D.E. 377, 378, 381, 383–84]. On September 26, 2022, defendants replied [D.E. 391–95].

On July 13, 2022, defendants moved to stay proceedings [D.E. 361] and filed a memorandum in support [D.E. 362]. On August 29, 2022, plaintiffs responded in opposition [D.E. 380]. On September 26, 2022, defendants replied [D.E. 398]. On March 31, 2023, the court denied defendants’ motion to stay and expounds on the reasons in this order.

On June 6, 2023, the court held that it would not grant certification on plaintiffs’ proposed “Health Study Injunctive and Declaratory Relief Subclass” consisting of “[a]ll Class Members who consent to participate in the epidemiological study.” [D.E. 410-1] 1–2 (quotation omitted). The court also asked the parties to provide an update on possible settlement. See id. at 2–3. On September 13, 2023, the parties engaged in court-hosted mediation with United States Magistrate Judge Gates. See [D.E.412–419]. The mediation did not resolve the case. See [D.E. 419].

As explained below, the court denies as moot defendants' motion for partial judgment on the pleadings and denies defendants' motion to exclude testimony of plaintiffs' experts Sunding, Gamble, and Gray and Griffith. The court grants defendants' motion to exclude the testimony of Duncklee, DeWitt, and DeGrandchamp. The court grants in part and denies in part plaintiffs' motion for class certification.

I.

A.

The plaintiffs' claims concern defendants' discharge of wastewater allegedly containing perfluorinated compounds ("PFCs"), notably GenX. See Am. Consol. Class Action Compl. [D.E. 132-1] ¶¶ 1–2. PFCs are chemical compounds in which carbon-fluorine bonds replace all of the carbon-hydrogen bonds. Cf. id. at ¶¶ 19–20. PFCs are classified and named based on the length of the carbon chain in the molecule and any functional group attached to the chain. See id. at ¶¶ 20, 23. PFCs degrade slowly under environmental conditions, and plaintiffs allege that some PFCs "persist in the environment for over 2,000 years." Id. at ¶ 23; see id. at ¶¶ 24–25. PFCs, including GenX and perfluorooctanoic acid ("PFOA"), have been manufactured for use in various commercial products. See id. at ¶¶ 1, 19, 26–27; cf. id. at ¶¶ 28–83. In total, plaintiffs allege that defendants discharged 17 different PFCs into the Cape Fear River. See id. at ¶ 87.

Plaintiffs allege that "PFCs are highly toxic to humans" and that "[s]cientists have linked PFCs to kidney cancer, testicular cancer, prostate cancer, ovarian cancer, non-Hodgkin lymphoma, liver disease, ulcerative colitis, thyroid disease, hypercholesterolemia, and pregnancy-induced hypertension, among other illnesses." Id. at ¶ 21. Plaintiffs discuss research concerning the toxicity of PFOA. See id. at ¶¶ 26–32, 34–39, 41, 43–44, 51–52. Plaintiffs also discuss studies of GenX's toxicity. See id. at ¶¶ 60–62, 65, 68–69, 71–75, 78. Plaintiffs allege that the studies indicate that

rodents exposed to GenX developed “liver cell damage that could be a precursor to cancer” and had “a higher incidence of liver tumors, pancreatic tumors, and testicular tumors.” Id. at ¶¶ 65, 69. Although GenX’s toxicity has been studied only in rodents, plaintiffs state that GenX is chemically similar to PFOA, which is toxic to humans. See id. at ¶ 79. Plaintiffs also note that the Environmental Protection Agency (“EPA”) established a lifetime health advisory level for PFOA and a related compound (perfluorooctane sulfonate or “PFOS”) of 70 parts per trillion (“ppt”) in drinking water. See id. at ¶ 22. Relatedly, North Carolina adopted a preliminary health-based goal of 140 ppt for GenX. Id.; see id. at ¶ 92.

The Fayetteville Works plant is located in Fayetteville, North Carolina, and plaintiffs allege that the Fayetteville plant discharged wastewater into the Cape Fear River. See id. at ¶¶ 2, 14. DuPont constructed the Fayetteville Works plant in the 1970s and owned it until February 1, 2015. See id. at ¶ 14. On February 1, 2015, Chemours acquired the Fayetteville Works plant from DuPont. See id. at ¶ 15. In July 2015, Chemours separated from DuPont. See id.

The Fayetteville Works plant has at least five manufacturing areas dedicated to fluoromonomers/Nafion, polymer processing aid, Butacite, SentryGlas, and polyvinyl fluoride. See id. at ¶ 16. Plaintiffs allege that, from the 1950s until the early 2000s, DuPont “relied heavily on PFOA . . . to make Teflon and other non-stick products.” Id. at ¶ 26. Initially, DuPont purchased PFOA from the 3M Company (“3M”). See id. at ¶¶ 34, 44. Both DuPont and 3M investigated the toxicological properties of PFOA during this time. Plaintiffs allege that DuPont was aware of safety risks associated with PFOA as early as the 1960s, well before DuPont opened the Fayetteville Works plant. See id. at ¶¶ 29–33. Nevertheless, DuPont discharged wastewater containing PFOA and other PFCs into the Cape Fear River and into “unlined biosludge settlement lagoons” that DuPont “knew or should have known . . . would flow into the Cape Fear River.” Id. at ¶¶ 33, 37.

Plaintiffs allege that, by 2000, 3M decided to stop manufacturing PFOA because of PFOA's toxicity, and DuPont began manufacturing PFOA at the Fayetteville Works plant itself. See id. at ¶¶ 44, 47. Plaintiffs allege that DuPont misrepresented facts to the North Carolina Department of Environmental Quality ("DEQ") about PFOA in reapplying for its National Pollutant Discharge Elimination System ("NPDES") permit. See id. at ¶¶ 45–46, 48–50. For example, plaintiffs allege that DuPont represented that it did not discharge wastewater from the Fayetteville Works plant into the Cape Fear River. See id. at ¶ 49. Moreover, plaintiffs allege that DuPont continued to discharge PFOA into the Cape Fear River even after the results of "the first comprehensive study of the effects of PFOA on human health . . . confirmed that PFOA causes cancer and a host of other health problems in humans." Id. at ¶ 51. Plaintiffs also allege that DuPont did not report numerous PFOA spills that occurred between 2011 and 2013. See id. at ¶ 54.

As the EPA learned of the dangers associated with PFOA, DuPont began to search for a replacement for PFOA. See id. at ¶ 58. DuPont selected GenX as the replacement for PFOA. See id. Plaintiffs allege that DuPont had been discharging GenX into the Cape Fear River since the 1980s. See id. at ¶¶ 55–57. In 2009, DuPont and the EPA "reached a consent order pursuant to the Toxic Substances Control Act" to replace PFOA with GenX. Id. at ¶ 59. DuPont represented that GenX would be safer than PFOA because it would biodegrade more quickly than PFOA. See id. As part of the consent order, DuPont had to investigate the toxicological properties of GenX and to "recover and capture (destroy) or recycle GenX from all the process wastewater effluent streams and air emissions . . . at an overall efficiency of 99%." Id. (quotation and alteration omitted).

On March 15, 2010, DuPont submitted a study to the EPA showing that GenX, like PFOA, was not biodegradable. See id. at ¶ 60. In July 2010, DuPont submitted the results from animal studies that showed that rodents exposed to GenX experienced numerous adverse health

consequences, including birth defects, liver necrosis, and cellular deformation indicative of liver disease and early-stage cancer. See id. at ¶¶ 61–62. DuPont conducted additional studies, and plaintiffs allege that each study indicated that GenX was likely toxic to humans. See id. at ¶¶ 65–66, 68–75. Despite the results of the studies and the consent order, plaintiffs allege that DuPont and later Chemours continued to discharge GenX into “the Cape Fear River, the groundwater, and the air surrounding the Fayetteville Works plant.” Id. at ¶ 63; see id. at ¶¶ 64, 81, 83.

As part of a study of PFCs in Wilmington’s water supply, Dr. Detlef Knappe (“Knappe”), a professor at North Carolina State University, collected water samples from the Cape Fear River. See id. at ¶ 84. On May 3, 2016, Knappe contacted the Cape Fear Public Utility Authority (“CFPUA”) and told the CFPUA that he detected GenX and other PFCs in the water “at the CFPUA intake” at an average concentration of 631 ppt. Id. On November 10, 2016, Knappe and his co-authors published the results of the study. See id. at ¶ 85. On November 23, 2016, Knappe shared his research with DEQ and numerous “city and county water treatment plants” and noted that “levels of GenX were very high in Wilmington and that none of the newly discovered compounds being discharged by the Chemours plant were being removed by the city’s . . . treatment plant.” Id. at ¶ 86 (quotation omitted); see id. at ¶ 87 (listing the 17 PFCs detected in the Cape Fear River watershed). In response to Knappe’s research, North Carolina set the preliminary health goal for GenX of 140 ppt. See, e.g., id. at ¶ 92.

Knappe’s research raised awareness of defendants’ practices at the Fayetteville Works plant. Plaintiffs allege that, on June 15, 2017, Chemours admitted to state and local regulators that it had been discharging GenX into the Cape Fear River for approximately four decades. See id. at ¶ 93. On June 19, 2017, DEQ tested water samples from 13 locations along the Cape Fear River in Wilmington and Fayetteville, and DEQ found that “finished water from four water treatments plants

had GenX concentrations exceeding the state's [health goal] of 140 ppt." Id. at ¶ 95. On July 10, 2017, DEQ received data from a third-party laboratory in Colorado that detected GenX concentrations exceeding 39,000 ppt in raw water and exceeding 790 ppt in finished water. See id. at ¶ 97. On August 31, 2017, the EPA announced that it had discovered two additional PFCs, byproducts of defendants' manufacturing of Nafion, at concentrations exceeding the EPA's health advisory level of 70 ppt for long-chain PFCs. See id. at ¶ 98. Around the same time, the North Carolina Department of Water Resources ("DWR") tested 14 groundwater-monitoring wells, and DWR detected GenX at high concentrations in 13 of the wells. See id. at ¶ 99. One of the wells was upstream of the Fayetteville Works plant, which plaintiffs allege suggests that defendants discharged GenX and other PFCs into the air. See id. Plaintiffs allege that defendants have discharged GenX into the Cape Fear River and the soil, air, and groundwater surrounding the Fayetteville Works plant since at least 1980. See, e.g., id. at ¶ 1.

On September 5, 2017, DWR filed a notice of intent to suspend Chemours's NPDES permit because "Chemours misrepresented and failed to disclose fully all relevant facts." Id. at ¶ 100 (quotation and alterations omitted). Later that month, Chemours and DEQ tested private wells within a one-mile radius of the Fayetteville Works plant, and DEQ ordered Chemours to supply bottled drinking water to individuals whose private wells contained GenX at concentrations exceeding the state's health goal of 140 ppt. See id. at ¶ 103. On November 3, 2017, DEQ inspected the Fayetteville Works plant and learned that Chemours had spilled an unknown quantity of a chemical precursor to GenX in October 2017 and had not disclosed the event. See id. at ¶ 104. On November 16, 2017, DEQ moved to partially suspend Chemours's NPDES permit. See id. at ¶ 105. DEQ subsequently learned of additional pollution, and plaintiffs allege that additional testing indicated that GenX and other PFCs had contaminated both the Cape Fear watershed and the

surrounding airshed. See id. at ¶¶ 106–07. For example, investigators found GenX in plants, vegetables, and honey. See id. at ¶¶ 108–09.

B.

Plaintiffs are individuals who reside in counties “that use the Cape Fear River as a primary source of drinking water.” Id. at ¶ 2. Carey resides in Leland, North Carolina, which is in Brunswick County. See id. at ¶¶ 10, 118. Burris resides in Bunnlevel, North Carolina, which is in Harnett County. Burris owns property that she previously resided in and currently rents out in Fayetteville, North Carolina, which is in Cumberland County. See id. at ¶¶ 11, 123. Kiser and Nix reside in Wilmington, North Carolina, which is in New Hanover County. See id. at ¶ 126–27. Plaintiffs filed this class action “on behalf of the thousands of residents, property owners, and business owners who have experienced, and will continue to experience, serious harm from [d]efendants’ conduct.” Id. at ¶ 5.

Carey alleges that she and her husband have resided in Leland, North Carolina, and regularly used water from the Cape Fear River since 2002. See id. at ¶ 118–19. Carey had her home tested for PFCs and found GenX present in concentrations that exceeded North Carolina’s preliminary health goal. See id. at ¶ 120. Additionally, Carey has been diagnosed with thyroid nodules, a goiter, hyperthyroidism, and an idiopathic immune condition, and her husband has been diagnosed with a similar thyroid condition. See id. at ¶ 121. Plaintiffs allege that these illnesses comport with those caused by exposure to PFCs including GenX. See id.

Burris alleges that she resided in Fayetteville, North Carolina, near the Fayetteville Works plant for eleven years. See id. at ¶ 123. In 2015, Burris moved to Bunnlevel, North Carolina, and she now rents out the property in Fayetteville. See id. In October 2017, the DEQ informed Burris that the drinking water at her Fayetteville property contained GenX at a concentration of 322 ppt.

See id. at ¶ 124. DEQ recommended that the current resident not drink the water, and the resident now relies on bottled water that Chemours provides. See id. at ¶ 125.

Kiser has resided in Wilmington, North Carolina since 1993. See id. at ¶ 126. Kiser has been diagnosed with colon cancer and stomach cancer. See id. Kiser has ulcers and cysts on his liver and intestines. See id. Plaintiffs allege that these illnesses comport with those caused by exposure to PFCs including GenX. See id.

Nix has resided in Wilmington, North Carolina, since approximately 2011. See id. at ¶ 127. Nix is a triathlete and consumes “a great deal of water.” Id. at ¶ 128. Since learning about GenX, Nix only drinks bottled water, which costs him approximately \$100 per month. See id. A doctor diagnosed Nix with ulcerative colitis and diverticulitis. See id. at ¶ 129. Plaintiffs allege that these illnesses comport with those caused by exposure to PFCs including GenX. See id. at ¶ 130.

Plaintiffs seek to represent the class of individuals who have resided in the counties surrounding the Fayetteville Works plant since 2015 (the “class”). See id. at ¶ 131. Plaintiffs allege that the injuries that they suffered are typical of the class and include personal injury and harm to property. See id. at ¶ 135. As for harm to property, plaintiffs allege that, because it “will be very difficult to remove [GenX and other PFCs] from North Carolina residents’ pipes, fittings, and fixtures,” plumbing and fixtures must be replaced inside homes and businesses, bottled water must be provided until water is safe to drink, and water filtration systems must be installed to filter GenX and other PFCs. See id. at ¶¶ 111–17. Plaintiffs also allege that no system exists to filter GenX or other PFCs from the water supply. See id. at ¶ 116.

On January 31, 2018, plaintiffs filed a consolidated class action complaint alleging negligence, gross negligence, negligence per se, public nuisance, private nuisance, trespass, and unjust enrichment [D.E. 53]. Plaintiffs seek compensatory damages, punitive damages, and

injunctive relief including repairs to private property, funding of an epidemiological study to investigate GenX and other PFCs, and “establishment of medical monitoring to provide health care and other appropriate services to [c]lass members for a period of time deemed appropriate.” *Id.* at 46–47. On April 19, 2019, the court granted in part defendants’ motion to dismiss count three (negligence *per se*), count four (public nuisance), and count six (unjust enrichment) [D.E. 109]. The court also rejected plaintiffs’ request for medical monitoring, holding that North Carolina law does not recognize “an independent cause of action for medical monitoring.” *Id.* at 21.

On August 30, 2019, plaintiffs filed a First Amended Consolidated Class Action Complaint [D.E. 132-1]. On September 13, 2019, defendants moved again to dismiss the negligence *per se*, public nuisance, and unjust enrichment claims re-alleged in the amended complaint. *See* [D.E. 135, 136]. Defendants also moved to again dismiss plaintiffs’ medical monitoring claims pursuant to the court’s April 19, 2019 order. *See id.* On September 24, 2020 the court granted defendants’ motion, dismissing once again plaintiffs’ negligence *per se*, public nuisance, unjust enrichment, and medical monitoring claims. *See* [D.E. 249].

II.

Defendants move to stay proceedings because the remedies plaintiffs seek allegedly conflict with the remedies required under the NCDEQ Consent Order entered in state court “and the associated ongoing regulatory process.” [D.E. 361] 1; *cf.* [D.E. 336-32] (copy of NCDEQ Consent Order). According to defendants, the NCDEQ Consent Order governs which water replacement or filtration option to use at a given residence. [D.E. 361] 1. Moreover, under the NCDEQ Consent Order, for certain residences, Chemours has provided “either connections to public water systems or whole-house granular-activated carbon (‘GAC’) filtration systems to remediate drinking water contaminated with hexafluoropropylene oxide dimer acid and its ammonium salt (collectively referred

to as ‘HFPOA-DA’ or ‘Gen X compounds’).” Id. at 2. “Chemours has also installed reverse osmosis (‘RO’) filters on up to three taps at other residences with lower levels of HFPO-DA contamination or contamination with other per- and poly-fluorinated alkyl substances (‘PFAS’).” Id. According to defendants, “[a]ny order by this [c]ourt to install a particular water filtration system at [p]laintiffs’ residences would not alleviate Chemours’ obligations to potentially install a different system at the same residences.” Id.; see [D.E. 362] 6–10. In support, defendants cite plaintiffs’ expert witness Dr. Robert Michaels, whose recommended remedy for water filtration systems allegedly conflicts with defendants’ obligations under the NCDEQ Consent Order. See [D.E. 362] 8; [D.E. 398] 1–2. Plaintiffs respond that this court should not stay proceedings in deference to the NCDEQ Consent Order and that the NCDEQ Consent Order expressly does not address plaintiffs’ private-law claims. See [D.E. 380] 1.

Defendants invoke the “primary jurisdiction” doctrine. See [D.E. 362] 6. The primary jurisdiction doctrine allows a court to dismiss without prejudice or stay proceedings where a case contains claims properly cognizable in court that “contain some issue within the special competence of an administrative agency.” Reiter v. Cooper, 507 U.S. 258, 268 (1993); see Smith v. Clark/Smoot/Russell, 796 F.3d 424, 431 (4th Cir. 2015). When applicable, the doctrine permits a court to “tak[e] advantage of agency expertise and refer[] issues of fact not within the conventional experience of judges or cases which require the exercise of administrative discretion.” Smith, 796 F.3d at 431. The doctrine applies when “federal litigation raises a difficult, technical question that falls within the expertise of a particular agency.” Piney Run Pres. Ass’n v. Cnty. Comm’rs of Carroll Cnty., 268 F.3d 255, 262 n.7 (4th Cir. 2001). Whether to refer a decision to an administrative agency is discretionary. See, e.g., Env’tl Tech. Council v. Sierra Club, 98 F.3d 774, 789 n.24 (4th Cir.

1996); Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC, 141 F. Supp. 3d 428, 449 (M.D.N.C. 2015).

The primary jurisdiction doctrine normally involves a litigant asking a court to defer to a federal agency. See Ill. Bell Tel. Co. v. Glob. NAPs Ill., Inc., 551 F.3d 587, 595 (7th Cir. 2008) (“Primary jurisdiction usually involves referral to a federal agency, but in a case such as this, in which a state commission is exercising in effect delegated federal power, the logic of the doctrine permits a federal court’s reference to a state agency.”); see also Elam v. Kansas City S. Ry., 635 F.3d 796, 809 (5th Cir. 2011). Indeed, the cases that defendants cite only apply the doctrine to federal agencies. See, e.g., Duke Energy Progress, Inc. v. Frontier Commc’ns of the Carolinas, Inc., No. 5:13-CV-617, 2014 WL 4948112, at *7 (E.D.N.C. Sept. 25, 2014) (unpublished) (applying the doctrine to a case involving the Federal Communication Commission’s primary jurisdiction regarding rental rates for contain pole attachments after a certain date). Moreover, defendants have not alleged that NCDEQ is performing a regulatory action that a federal agency or Congress delegated to it. Cf. Ill. Bell Tel. Co., 551 F.3d at 595. Abstention doctrines, however, are not “rigid pigeonholes” and have overlapping standards and rationales. Martin v. Stewart, 499 F.3d 360, 364 (4th Cir. 2007) (quotation omitted). Therefore, the court addresses defendants’ motion to stay.

Plaintiffs assert private-law property claims. See Am. Consol. Class Action Compl. Such claims fit comfortably within the “conventional experience of judges” and are not within NCDEQ’s particular expertise. See, e.g., Cooper, 507 U.S. at 268; Smith, 796 F.3d at 431. Moreover, the NCDEQ Consent Order does not give the NCDEQ exclusive administrative regulatory power over the claims asserted in this case. Indeed, the NCDEQ Consent Order expressly excludes this action from its scope. See [D.E. 336-32] ¶ 36. The court cannot simply refer this action to the NCDEQ. See AVX Corp. v. Corning Inc., No. 5:15-CV-543, 2018 WL 1950425, at *5 (E.D.N.C. Apr. 25,

2018) (unpublished). Furthermore, defendants have not provided the court with a proposed end date, timeline, or other method to determine when the court would lift the proposed stay. As for defendants' argument about the potential for conflict between the water filtration replacements defendants are performing under the NCDEQ Consent Order and plaintiffs' requested relief, defendants' argument about relief is premature. Although defendants note that one of plaintiffs' experts argues for a different remedial scheme than that required under the NCDEQ Consent Order, this argument does not mean that the ultimate remedy in this case (if any) will conflict with defendants' actions under the NCDEQ Consent Order. See [D.E. 398] 1; [D.E. 336-45] 16. After all, liability and the proper remedy remain contested in this action. The speculative risk of a potential future conflict among potential future remedies does not warrant staying the action. Thus, the court denies defendants' motion to stay.

III.

Defendants move to exclude the testimony of several expert witnesses. Rule 702 of the Federal Rules of Evidence governs the admission of expert testimony. See Fed. R. Evid. 702; Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141 (1999); Gen. Elec. Co. v. Joiner, 522 U.S. 136, 142-43 (1997); Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 589-95 (1993); United States v. Forrest, 429 F.3d 73, 80-81 (4th Cir. 2005); Silicon Knights, Inc. v. Epic Games, Inc., No. 5:07-CV-275, 2011 WL 6748518, at *5-6 (E.D.N.C. Dec. 22, 2011) (unpublished). The proponent of the expert testimony must establish its admissibility by a preponderance of the evidence. See Fed. R. Evid. 104(a); Daubert, 509 U.S. at 592 n.10; Cooper v. Smith & Nephew, Inc., 259 F.3d 194, 199 (4th Cir. 2001); see also Huddleston v. United States, 485 U.S. 681, 687 n.5 (1988) (noting that "preliminary factual findings under Rule 104(a) are subject to the preponderance-of-the-evidence standard"); Bourjaily v. United States, 483 U.S. 171, 175 (1987) ("The preponderance standard

ensures that before admitting evidence, the court will have found it more likely than not that the technical issues and policy concerns addressed by the Federal Rules of Evidence have been afforded due consideration.”). A district court has broad discretion in determining the admissibility of proposed expert testimony. See United States v. Gastiaburo, 16 F.3d 582, 589 (4th Cir. 1994).

Expert testimony is appropriate when it “will help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). A district court may permit a witness qualified by knowledge, skill, experience, training, or education to testify and state an opinion where “([1]) the testimony is based upon sufficient facts or data, ([2]) the testimony is the product of reliable principles and methods; and ([3]) the expert has reliably applied the principles and methods to the facts of the case.” Fed. R. Evid. 702(b)–(d). Courts have distilled Rule 702’s requirements into three crucial inquiries: (1) whether the proposed expert witness is qualified; (2) whether the proposed testimony is relevant; and (3) whether the proposed testimony is reliable. See Kumho Tire Co., 526 U.S. at 141; Daubert, 509 U.S. at 589; Forrest, 429 F.3d at 80. The trial court must perform the special gatekeeping obligation concerning these three requirements. See, e.g., Kumho Tire Co., 526 U.S. at 147.

As for qualification, an expert may be qualified based on “knowledge, skill, experience, training, or education.” Fed. R. Evid. 702. A court assesses qualification in reference to the matter to which the witness seeks to testify. See Daubert, 509 U.S. at 591–93; Gladhill v. Gen. Motors Corp., 743 F.2d 1049, 1052 (4th Cir. 1984). The witness need not be the most well-known or well-qualified witness. See Gladhill, 743 F. 2d at 1052. Nonetheless, a witness does not become an expert simply by claiming to be an expert or because some other court permitted the witness to testify as an expert. See Thomas J. Kline, Inc. v. Lorillard, Inc., 878 F.2d 791, 799–800 (4th Cir. 1989) (holding that a witness with an M.B.A. was not qualified to provide expert opinion testimony

on complex economic antitrust matters about which the witness was not qualified by training, experience, or education); see also United States v. Bahena, 223 F.3d 797, 809–10 (8th Cir. 2000) (holding that a witness who held himself out to be an expert on voice spectrography lacked the required training, experience, or education). Moreover, expertise in one topic does not qualify a witness to testify about another topic. See Sardis v. Overhead Door Corp., 10 F.4th 268, 288–90, 295 (4th Cir. 2021) (excluding testimony about an industry standard not sufficiently related to the product at issue and excluding testimony that contradicts standards imposed by governing law); Zellers v. NexTech Ne., LLC, 533 F. App'x 192, 197 (4th Cir. 2013) (per curiam) (unpublished) (affirming exclusion of a neurologist's testimony about the toxicity of certain chemicals used for refrigeration because the neurologist had no training in toxicology); Cooper, 259 F.3d at 200 (excluding testimony of a medical doctor who based an opinion on a medical device without conducting tests or studying the medical device); Ancho v. Pentek Corp., 157 F. 3d. 512, 519 (7th Cir. 1998) (excluding testimony when the expert failed to visit the site of the accident or otherwise familiarize himself with the specific details of the accident at issue).

To be relevant, the proposed expert testimony must be helpful to the trier of fact concerning a claim or defense at issue in the case. See Daubert, 509 U.S. at 591–92; United States v. Lespier, 725 F.3d 437, 449 (4th Cir. 2013); Kopf v. Skyrn, 993 F.2d 374, 377 (4th Cir. 1993); Persinger v. Norfolk & W. Ry., 920 F.2d 1185, 1188 (4th Cir. 1990); Scott v. Sears, Roebuck & Co., 789 F.2d 1052, 1055 (4th Cir. 1986). To be helpful, the proposed expert testimony must fit the facts of the case. “Fit is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.” Daubert, 509 U.S. at 591 (quotation omitted). To be helpful to the trier of fact, the proposed expert testimony must be outside the common knowledge or function of the fact finder. See, e.g., Lespier, 725 F.3d at 449 (affirming exclusion of expert

testimony on how sleep deprivation affects the reliability of an eye witness to a crime); Persinger, 920 F.2d at 1188 (affirming exclusion of expert testimony about the amount of weight that an individual could safely lift based on an easily-applied industry formula); Gladhill, 743 F. 2d at 1052 (affirming decision that a police officer who had investigated 600 car accidents and arrived at the car accident scene immediately after the car accident was qualified to give an opinion as to the cause of the car accident based on his review of the car accident scene); see also United States v. Hill, 749 F. 3d 1250, 1260 (10th Cir. 2014) (reversible error to allow an expert witness to testify about whether another witness was being credible; “credibility [i]s for determination by the jury,” and “an expert may not go so far as to usurp the exclusive function of the jury to weigh the evidence and determine credibility” (quotation and alteration omitted)); Nimley v. City of New York, 414 F. 3d 381, 398 (2d Cir. 2005) (same).

“[T]he test of reliability is flexible and the law grants a district court . . . broad latitude when it decides” reliability. United States v. Wilson, 484 F.3d 267, 274 (4th Cir. 2007) (quotation omitted); see Kumho Tire Co., 526 U.S. at 141–42; Belville v. Ford Motor Co., 919 F.3d 224, 233 (4th Cir. 2019) (rejecting argument that a district court always must consider potential rate of error or other specific factors when weighing expert reliability). There is not a fit when a large analytical gap exists between the facts and the opinion. See Joiner, 522 U.S. at 146–47 (affirming excluding testimony where the expert’s opinion was based upon irrelevant testing on animals unrelated to the case at issue); In re Lipitor (Atorvastatin Calcium) Mktg., Sales Pracs. & Prods. Liab. Litig., 892 F.3d 624, 634–35 (4th Cir. 2018) (affirming excluding testimony when the expert’s testing contradicted his opinion); Nease v. Ford Motor Co., 848 F. 3d 219, 232–33 (4th Cir. 2017) (affirming excluding testimony when expert on vehicle safety failed to test his own hypothesis); Cooper, 259 F. 3d at 200–01 (affirming excluding testimony on what caused a medical injury when

the expert's testing did not provide evidence of causation). The Federal Rules of Evidence do not require "a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert." Joiner, 522 U.S. at 146; see Small v. WellDyne, Inc., 927 F.3d 169, 177 (4th Cir. 2019) ("Without testing, supporting literature in the pertinent field, peer reviewed publications[,] or some basis to assess the level of reliability, expert opinion testimony can easily, but improperly, devolve into nothing more than proclaiming an opinion is true 'because I say so.'").

In determining "whether proffered testimony is sufficiently reliable, the court has broad latitude to consider whatever factors bearing on validity that the court finds to be useful; the particular factors will depend upon the unique circumstances of the expert testimony involved." Westberry v. Gislaved Gummi AB, 178 F.3d 257, 261 (4th Cir. 1999). Factors that may bear on the reliability of the expert's testimony include (1) whether a theory or technique can be (and has been) tested, (2) whether the theory or technique has been subjected to peer review and publication, (3) whether a technique has a high known or potential rate of error and whether there are standards controlling its application, and (4) whether the theory or technique enjoys general acceptance within the relevant community. See Kumho Tire Co., 526 U.S. at 149–50; Daubert, 509 U.S. at 593–94; In re Lipitor, 892 F. 3d at 644 (holding that a medical doctor testifying that Lipitor caused certain diseases was excludable for not factoring in other risk factors, such as age, body mass index, and family history); Sardis, 10 F.4th at 288–90 (holding testimony about product safety unreliable when expert did not test the product); McKiver v. Murphy-Brown, LLC, 980 F.3d 937, 960 (4th Cir. 2020) (holding that a witness's method for analyzing the origin of swine fecal material was widely used and applied reliably enough to be admitted despite not being subject to peer review); Baxter v. Comm'r of Internal Revenue Serv., 910 F.3d 150, 157–58 (4th Cir. 2018) (holding that mere disagreement with an expert's otherwise reliable methodology is not grounds for exclusion); United

States v. Crisp, 324 F.3d 261, 265–66 (4th Cir. 2003) (holding that expert fingerprint analysis was admissible despite defendant’s objections to its general scientific accuracy). “Result-driven analysis, or cherry-picking, undermines principles of the scientific method and is a quintessential example of applying methodologies (valid or otherwise) in an unreliable fashion.” In re Lipitor, 892 F.3d at 634; see EEOC v. Freeman, 778 F.3d 463, 468–69 (4th Cir. 2015) (Agee, J., concurring) (collecting cases).

“It is well recognized that epidemiology usually provides the best evidence of general causation in toxic tort actions.” Rhyne v. U.S. Steel Corp., 474 F. Supp. 3d 733, 743 (W.D.N.C. 2020); Norris v. Baxter Healthcare Corp., 397 F.3d 878, 882 (10th Cir. 2005); Rider v. Sandoz Pharm. Corp., 295 F.3d 1194, 1198 (11th Cir. 2002); In re Lipitor (Atorvastatin Calcium) Mktg., Sales Pracs. & Prods. Liab. Litig., 174 F. Supp. 3d 911, 914 (D.S.C. 2016). In toxic tort cases, causation generally will depend on a qualified expert witness establishing both “general causation and specific causation.” Rhyne, 474 F. Supp. 3d at 743. “[I]n order to carry the burden of proving a plaintiff’s injury was caused by exposure to a specified substance, the plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally as well as the plaintiff’s actual level of exposure.” Id. (quotation omitted); see Westberry, 178 F.3d at 263.

When experts testify concerning toxicity, “an expert witness will not necessarily need to define the precise lower bound of exposure risk” in order for the testimony to be reliable. In re Lipitor, 892 F.3d at 640. “The appropriate level of analysis will depend on the circumstances of the case and the capacity of current scientific methods.” Id.; see Westberry, 178 F.3d at 263–65 (admitting testimony about the dangers of “substantial exposure” to toxic materials without requiring the expert to identify the specific quantities at which a material becomes toxic); Benedi v. McNeil-P.P.C., Inc., 66 F.3d 1378, 1383–85 (4th Cir.1995) (holding that testimony by treating physician

concerning cause of plaintiff's liver failure—acetaminophen combined with alcohol—was admissible despite the lack of epidemiological data). In order to opine on causation of injury, however, an expert generally must identify “the levels of exposure that are hazardous to human beings generally as well as the plaintiff's actual level of exposure.” Westberry, 178 F.3d at 263 (quotation omitted); see McGill v. BP Expl. & Prod., Inc., 830 F. App'x 430, 433 (5th Cir. 2020) (per curiam) (unpublished) (upholding the exclusion of an expert's opinion that was “not based on sufficient facts” and relied on studies that failed to “provide conclusive findings on what exposure level of Corexit is hazardous to humans”); McClain v. Metabolife Intern., Inc., 401 F.3d 1233, 1241–42 (11th Cir. 2005) (noting that an expert who could not provide an opinion on “the dose or level of exposure at which [the chemical] causes harm” did “not follow the basic methodology that scientists use to determine causation—the dose-response relationship”); Zellers, 533 F. App'x at 198 (affirming exclusion of a doctor who opined that a toxic substance caused a plaintiff's injury despite not knowing the “intensity and duration” of plaintiff's exposure); Zellars v. NexTech Ne., LLC, 895 F. Supp. 2d 734, 739–751 (E.D. Va. 2012) (excluding testimony of causation expert whose opinions were not reliable and, on some points, not relevant to the issue of causation), aff'd, 533 F. App'x 192 (2013) (per curiam) (unpublished). When there are multiple avenues of potential causation, an expert must account for alternative causes. See Bryte ex rel. Bryte v. Am. Household, Inc., 429 F.3d 469, 477 (4th Cir. 2005) (affirming exclusion of testimony about probable sources of a fire where the expert failed to consider alternative sources); Pipitone v. Biomatrix, Inc., 288 F.3d 239, 245 (5th Cir. 2002) (same).

In Zellars, the court evaluated four experts witnesses who sought to testify about plaintiffs' exposure to allegedly toxic refrigerants. Zellars, 895 F. Supp. 2d at 739–751. The first expert, a medical doctor (Dr. Gallagher) who treated a plaintiff's underlying conditions, was not qualified to

opine whether the refrigerant caused plaintiff's injury. Id. at 743. In excluding the testimony, the court noted that:

The scope of Dr. Gallagher's expertise does not encompass toxicology, chemical exposure, or, specifically, exposure to refrigerants. Her background includes training in emergency room medicine in medical school and during her residency, which included some training in diagnosing and treating toxic exposures and drug overdoses. However, Dr. Gallagher is not a toxicologist and has had no training in methodologies used for diagnosing refrigerant toxicity.

Id. (citation omitted). Even if Dr. Gallagher had toxicology training, the court also found that Dr. Gallagher "had no access to information about the air concentration of refrigerant gas to which [plaintiff] was exposed." Id. at 745. Thus, the court rejected Dr. Gallagher's testimony based on lack of expertise and for being unreliable. Likewise, the court rejected the differential diagnosis testimony of Dr. Sharma because he "did not adequately investigate or consider [plaintiff's] medical history or environmental factors other than the refrigerant leak" and failed to "isolate exposure to refrigerant gas as the most probable cause of [plaintiff's] condition." Id. at 747–48.

The Zellars court also rejected the expert testimony of plaintiff's toxicology experts. The court found that these experts' "opinion on specific causation is not based on sufficient scientific knowledge about the toxicity of R-404A or sufficient facts about [plaintiff's] exposure to the chemical." Id. at 749. The court also found the opinions to be unreliable because the toxicology experts "did not know what dose of R-404A would be required to cause [plaintiff's] alleged health effects." Id. Furthermore, the court found the toxicologists' testimony unreliable given that they "cannot testify within a reasonable degree of scientific certainty what the minimum level of [plaintiff's] exposure would need to be in order to cause her physical condition. . . . Without reliable scientific knowledge of what level of exposure to R-404A is needed to produce the medical

condition . . . [the toxicologists] can only speculate whether the level of [plaintiff's] exposure was high enough to cause her condition.” Id. at 750.

Courts routinely analyze the admissibility of expert testimony at the class certification stage. See, e.g., Prantil v. Arkema Inc., 986 F.3d 570, 576 (5th Cir. 2021); Williams v. Ests. LLC, No. 1:19-CV-1076, 2021 WL 1581239, at *5 n.3 (M.D.N.C. Apr. 22, 2021) (unpublished). In doing so, the court focuses on the “reliability of the expert testimony in light of the criteria for class certification and the current state of the evidence.” In re Zurn Pex Plumbing Prods. Liab. Litig., 644 F.3d 604, 614 (8th Cir. 2011).

A.

Defendants seek to exclude the testimony of David L. Sunding, Ph.D. on four grounds: (1) Sunding’s model includes “stigma” damages not recoverable under North Carolina law; (2) Sunding’s averages do not “fit” the recovery that plaintiffs request; (3) Sunding is not qualified to give the opinions at issue in his reports; and (4) Sunding’s model is unreliable. See [D.E. 349] 1–2. As for “stigma” damages, defendants argue that stigma damages are unavailable under North Carolina law for temporary or abatable nuisance claims. See, e.g., BSK Enters. v. Beroth Oil Co., 246 N.C. App. 1, 23, 783 S.E.2d 236, 251 (2016). Defendants assert that one of the primary estimates Sunding used to calculate his average damages is the “stigma” arising from uncertainty regarding PFAS contamination on the property. See [D.E. 349] 6; [D.E. 336-29] ¶¶ 48, 52. Plaintiffs respond that Sunding bases his model on real-world price factors and not the “stigma” damages at issue in BSK Enterprises. See [D.E. 383] 13.

Under North Carolina law, stigma damages can be “one of the factors which may be utilized in determining market price” in cases of “permanent nuisance which involves a diminution of value, regardless of the outcome of remediation.” Rudd v. Electrolux Corp., 982 F. Supp. 355, 372

(M.D.N.C. 1997); see Appeal of Camel City Laundry Co., 123 N.C. App. 210, 217, 472 S.E. 2d 402, 406–07 (1996). Defendants appear to believe that plaintiffs have foreclosed the possibility of finding permanent nuisance because their primary damages model “presumes temporary or abatable conditions, not permanent ones.” [D.E. 394] 5. Defendants, however, fail to cite language in the amended complaint, Sunding’s report, or evidence limiting plaintiffs’ theory only to temporary nuisance. So long as plaintiffs can still pursue permanent nuisance claims (and they can), Sunding’s inclusion of stigma damages does not contradict North Carolina law. See, e.g., Rudd, 982 F. Supp. at 372.

As for defendants’ “fit” argument, plaintiffs argue that Sunding’s model provides more individualized estimates and that his model provides a class-wide “cross-check” on the reasonableness of plaintiffs’ repair or replace remedy. [D.E. 383] 16, 22. Ultimately, whether Sunding’s method of averaging diminution of property damages for PFAS exposure provides adequate evidence to justify a damages award or common proof for the class are questions more suited for plaintiffs’ motion to certify.

As for certification, defendants cite numerous cases for the proposition that Sunding’s report cannot by itself satisfy certification under Rule 23. See [D.E. 349] 9–13. True enough. Defendants’ arguments about “fit” in this case, however, ultimately concern the weight of Sunding’s report, not whether to exclude it. See, e.g., Syngenta Crop Prot., LLC v. Willowood Azoxystrobin, LLC, 267 F. Supp. 3d 649, 658 (M.D.N.C. 2017). The court addresses these concerns regarding Sunding’s report in Part IV.A.3.vi of this order.

As for Sunding’s qualifications, Sunding is an “environmental economist” and has experience assessing chemical contamination and therefore, is qualified to opine on how PFAS affects property values. See [D.E. 383] 26. Sunding is a professor in the Department of Agriculture

and Resource Economics and the University of California, Berkeley. He has published extensively and has experience involving the economics of environmental contamination. See id.; [D.E. 336-29] ¶¶ 1–5. Sunding’s extensive experience studying the economic impact of environmental contamination qualifies Sunding to opine on the matters discussed in his report. Moreover, the court rejects defendants’ argument that Sunding’s opinions require expertise on the valuation of real estate. See [D.E. 349] 17.

As for defendants’ arguments about Sunding’s model, defendants argue that because Sunding’s pooled results are not statistically significant at $p = 0.05$ the court should exclude Sunding’s model. See [D.E. 349] 21. Plaintiffs respond that Sunding’s model is only not statistically significant at $p = 0.05$ when Sunding made adjustments to respond to defendants’ expert witness. See [D.E. 383] 24; [D.E. 343-51].

Defendants’ argument concerning Sunding’s model takes Sunding’s results out of context. Sunding’s initial report, not factoring in defendants’ changes, produced statistically significant results when pooled. See [D.E. 336-29] 34. The statistically insignificant results arose in rebuttal. Specifically, in Sunding’s rebuttal, Sunding adopted the assumptions of defendants’ expert, Jennifer Pitt, and ran his model again to opine that, even under conditions most favorable to defendants, PFAS contamination has a strong negative correlation to property values. See [D.E. 343-51]. This robustness check of Sunding’s model serves to make his findings more reliable, not less. The court denies defendants’ motion to exclude Sunding’s testimony.

B.

Defendants move to exclude a portion of the testimony of David L. Duncklee, P.G. See [D.E. 354–55]. Specifically, defendants attack Duncklee’s opinion that PFAS will continue to contaminate the Cape Fear River “for several decades to come” and challenge his methodology in forming this

opinion. See id. at 1. In support, defendants argue that Duncklee ignores defendants' ongoing remedial efforts and the steps that the Cape Fear Public Utility Authority has taken to upgrade the water filtration systems. See id. at 2–5. Plaintiffs respond that defendants improperly focus on a single, narrow opinion of Duncklee and argue that Duncklee accounted for defendants' remedial efforts and the actions of Cape Fear Public Utility Authority in forming his opinion. See [D.E. 377] 5–6.

The parties fail to explain why Duncklee's challenged opinion about PFAS contaminating the Cape Fear River "for several decades to come" is relevant to class certification. Plaintiffs are not seeking to certify a class of future property owners who will be damaged by PFAS contamination in the Cape Fear River. Instead, plaintiffs seek replacement or remediation for property owners whose water systems have been contaminated. See [D.E. 334-1] 23–24. Duncklee's opinion that PFAS will continue to contaminate the Cape Fear River for several decades to come does not affect the court's evaluation of plaintiffs' motion for class certification. See Daubert, 509 U.S. at 591–92; Lespier, 725 F.3d at 449; Kopf, 993 F.2d at 377; Persinger, 920 F.2d at 1188; Scott, 789 F.2d at 1055. Thus, for purposes of class certification, the court grants defendants' motion to exclude Duncklee's testimony that PFAS will continue to contaminate the Cape Fear River "for several decades to come."

C.

Defendants move to exclude the testimony of R. Bruce Gamble for three reasons: (1) Gamble's opinions are not useful to the trier of fact because they are the product of simple arithmetic; (2) Gamble based his work on a class different from those proposed by plaintiffs; and (3) Gamble's methodology is speculative and unreliable. See [D.E. 358] 1.

As for defendants' simple arithmetic argument, Gamble's model does employ simple

arithmetic. Gamble first quantified members of the class “impacted by ongoing contaminated water” by contacting multiple water authorities and obtaining the number of active residential metered water connection accounts. [D.E. 336-28] 11. Gamble multiplied this data with costs of remediation methods (e.g., replacing water filters, replacing water heaters, and providing bottled water) to produce estimated total costs of remediation for the customers included in Gamble’s model. See id. at 14–17. Notably, how Gamble knew what factors to plug into his equation, what assumptions to make in his model, and how to convert public utility data into a measure of potential damages required Gamble’s expert analysis. For example, Gamble had to make informed judgments about “which metered connections to include and what inputs to include” when crafting his model. See [D.E. 378] 12. Gamble also used his experience to make informed assumptions about, for example, the amount of R/O units each residence would require. See [D.E. 336-28] 14. Moreover, even if Gamble used “information that would be available to anyone,” a lay witness would not be able to synthesize such publicly available information into a coherent estimate, let alone credibly explain how the lay witness came to such conclusions. See [D.E. 358] 5.

In opposition, defendants cite Capps v. Newmark Southern Region, LLC, No. 5:18-CV-133, 2020 WL 2615753, at *5 (E.D.N.C. May 22, 2020) (unpublished), for the proposition that “simple arithmetic does not depend on specialized knowledge.” True enough. Unlike Gamble, however, the expert in Capps did not use his expertise to craft a formula, but instead used assumptions of fact that did “not involve any calculation or application of specialized knowledge.” Id.

Next, defendants argue that Gamble’s opinion is unreliable because Gamble’s proposed class differs from plaintiffs’ proposed classes. See [D.E. 358] 5. In support, defendants note that Gamble excludes from his proposed class groundwater sources and properties in Bladen County and Cumberland County. See id.; [D.E. 342-10] 12 (discussing that Gamble limited the scope of his

analysis to public water utility sources); [D.E. 336-28] ¶ 27 n.4.

This lack of perfect overlap does not justify excluding Gamble's testimony at this stage. Gamble's report explains that he did not include groundwater sources and properties in Bladen County and Cumberland County because the water was "either sourced upstream of the Fayetteville Works facility or from another source that was not directly or indirectly drawn from Cape Fear River surface water." [D.E. 336-28] ¶ 27 n. 4. Gamble's concession does not make his model or method unreliable, but provides grounds for defendants to challenge the reach of Gamble's model on cross examination. See, e.g., First Data Merch. Servs. Corp. v. SecurityMetrics, Inc., No. RDB-12-2568, 2014 WL 6871581, at *11 (D. Md. Dec. 3, 2014) (unpublished) (noting that potential issues of "double counting" can be resolved during cross examination and through rebuttal witnesses). Gamble can reliably apply his methods to the rest of plaintiffs' proposed class.

Defendants also argue that Gamble failed to create a reliable method of measuring class-wide damages but simply calculated "a mass estimated hypothetical class-damages total with no actual relation to the true injuries or damages of any individuals." [D.E. 395] 3. To the extent defendants believe that Gamble's damages calculations do not consider sufficient individual factors, these arguments go to the weight of Gamble's testimony.

Next, defendants argue that Gamble relies solely on the opinions of other experts. See [D.E. 358] 6–10. In support, defendants cite Funderburk v. South Carolina Electric & Gas Co., 395 F. Supp. 3d 695, 717–20 (D.S.C. 2019), for the proposition that expert opinions formed upon "unblinking reliance" on other expert opinions are inadmissible. See [D.E. 358] 10. In Funderburk, the court excluded the testimony of a proposed expert witness who solely relied upon a "blanket statement" from a non-peer reviewed article that the witness simply quoted verbatim. Funderburk, 395 F. Supp. 3d at 719–20.

In Funderburk, the court acknowledged that an expert may “rely upon the opinions and findings of other experts” to reach an expert opinion, but only if “experts in their respective field would reasonably rely on the other expert’s opinions and findings.” Id. at 717 (quotation omitted); see Gopalratnam v. Hewlett-Packard Co., 877 F.3d 771, 789 (7th Cir. 2017); Tamraz v. Lincoln Elec. Co., 620 F.3d 665, 675 (6th Cir. 2010); In re Wright Med. Tech. Inc., Conserve Hip Implant Prods. Liab. Litig., 127 F. Supp. 3d 1306, 1320 (N.D. Ga. 2015). Gamble is an expert in real estate and finance, and he has extensive experience analyzing large interconnected networks of properties, their respective value, and other related market characteristics. See [D.E. 336-28] 19–23. Gamble is not an expert on engineering or contamination. Thus, Gamble properly relied on the opinions of several experts to establish a “recommended remediation protocol,” which he then applied to his model to estimate total replacement costs. [D.E. 336-28] ¶ 37. Gamble did not simply parrot other experts in his conclusions. Instead, Gamble properly drew from multiple reports and sources after evaluating their utility and applied his expertise. See id. at ¶ 38.

Next, defendants challenge several assumptions Gamble included in his model. See [D.E. 358] 6–9. Plaintiffs respond that such arguments go to the weight of Gamble’s testimony. See [D.E. 378] 16–17.

The assumptions Gamble made in creating his model are not “systemic and fatal.” [D.E. 395] 7. For example, defendants criticize Gamble for not factoring in tidal influence, timing issues, and the differences between the number of bedrooms and sinks. See [D.E. 358] 6–8. The assumptions defendants cite concern the level of potential PFAS contamination and the need for certain remedial measures (such as, whether houses by the coast could have less costly R/O repair due to “water softeners”). Id. at 8. However, “admissibility under Daubert (for class-certification purposes) depends on an expert’s reliable estimation of injury, rather than an accurate calculation

of damages.” Mr. Dee’s Inc. v. Inmar, Inc., No. 1:19CV141, 2021 WL 4224720, at *21 (M.D.N.C. Sept. 16, 2021) (unpublished) (emphasis removed). Challenges to plaintiffs’ theory of necessary remedial action do not make Gamble’s underlying methodology unreliable or excludable at this stage of the case.

Defendants also argue that Gamble’s methodology is unreliable because it has not been subject to academic peer review. See [D.E. 358] 10. It is unclear, however, that Gamble’s analysis would ever be the subject of academic peer review. Gamble has experience creating reports for corporations investing in real estate, not writing academic articles. See [D.E. 336-28] 19–23. When an expert’s methodology is “not of the type that ordinarily would be subject to peer review,” lack of peer review does not render an expert’s opinion unreliable. Robinson v. Nationstar Mortg. LLC, No. CV TDC-14-3667, 2019 WL 4261696, at *14 (D. Md. Sept. 9, 2019) (unpublished); see Kumho Tire Co., 526 U.S. at 149–52; United States v. Carlson, 810 F.3d 544, 553 (8th Cir. 2016). The court denies defendants’ motion to exclude Gamble’s testimony for purposes of class certification.

D.

Defendants seek to exclude the testimony of Jamie C. DeWitt, Ph.D. [D.E. 381-4] and Richard L. DeGrandchamp, Ph.D. [D.E. 381-5] that there is no safe level of PFAS exposure in drinking water for human beings and that PFAS is toxic (i.e., poisonous) to human beings. See [D.E. 353] 1–15; cf. [D.E. 381-4] 77 (DeWitt opines “that the weight of scientific evidence suggests that PFAS are toxic to human health and there is no amount of exposure to PFAS in drinking water that is protective of human health for class members”); [D.E. 381-5] 16 (DeGrandchamp opines that “there is no known safe level of PFAS for Class Members’ drinking water simply because there have been no toxicity studies performed on these, save GenX”); see also id. at 18–19, 40. In support, defendants argue that (1) the opinions are derived from insufficient evidence and unreliable

methodology, and (2) the opinions are not helpful to resolve plaintiffs' motion for class certification. See [D.E. 353] 1–15.

Plaintiffs assert claims under North Carolina law for negligence, nuisance, and trespass. See Am. Consol. Class Action Compl. Plaintiffs need not establish that there is no safe level of PFAS exposure in drinking water for human beings in order to prove these three claims. Likewise, plaintiffs need not establish that PFAS is toxic (i.e., poisonous) to human beings in order to prove these three claims. In order to state a claim for negligence under North Carolina law, a plaintiff must prove that “(1) defendant[s] failed to exercise due care in the performance of some legal duty owed to plaintiff[s] under the circumstances; and (2) the negligent breach of such duty was the proximate cause of the injury.” Whisnant v. Carolina Farm Credit, 204 N.C. App. 84, 93–94, 693 S.E.2d 149, 156 (2010); see [D.E. 109] 11–12 (collecting cases). Because plaintiffs are not alleging personal injury in this claim, plaintiffs need not establish that there is no safe level of PFAS exposure in drinking water for human beings or establish that PFAS is toxic (i.e., poisonous) to human beings in order to prove their negligence claim. Similarly, to prevail on their private nuisance claim, plaintiffs need not establish that there is no safe level of PFAS exposure in drinking water for human beings or establish that PFAS is toxic to human beings. Rather, plaintiffs must prove a substantial and unreasonable interference with the use and enjoyment of their property. See Kent v. Humphries, 303 N.C. 675, 677, 281 S.E.2d 43, 45 (1981); [D.E. 109] 16. As for trespass, plaintiffs need not establish that there is no safe level of PFAS exposure in drinking water for human beings or establish that PFAS is toxic to human beings. Rather, to prevail on the trespass claim, plaintiffs must prove “(1) possession of the property by the plaintiff at the time of the alleged trespass; (2) unauthorized entry by the defendant; and, (3) damage to the plaintiff as a result.” House v. Fed. Home Loan Mortg. Corp., 261 F. Supp. 3d 623, 635 (E.D.N.C. 2016), aff’d, 699 F. App’x 259 (4th Cir. 2017)

(per curiam) (unpublished); see Spirax Sarco, Inc. v. SSI Eng'g, Inc., 122 F. Supp. 3d 408, 432–33 (E.D.N.C. 2015); Matthews v. Forrest, 235 N.C. 281, 283, 69 S.E.2d 553, 555 (1952). Whether there is no safe level of PFAS exposure in drinking water for human beings or whether PFAS is toxic to human beings is irrelevant to class certification on these three claims. See Daubert, 509 U.S. at 591–92; Lespier, 725 F.3d at 449; Kopf, 993 F.2d at 377; Persinger, 920 F.2d at 1188; Scott, 789 F.2d at 1055. Therefore, for purposes of class certification, the court declines to consider DeWitt's and DeGrandchamp's opinions.

In declining to consider these opinions for purposes of class certification, the court notes the parties' extreme positions. DeWitt and DeGrandchamp offer the unsupported opinion that there is no safe level of PFAS exposure in drinking water for human beings. See [D.E. 381-4] 77 (DeWitt); [D.E. 381-5] 16 (DeGrandchamp); cf. Yates v. Ford Motor Co., 113 F. Supp. 3d 841, 846 (E.D.N.C. 2015) (collecting cases rejecting the “each and every exposure” theory in asbestos litigation). Defendants initially respond appropriately that risks to humans from PFAS exposure in drinking water for human beings vary depending on the “amount and type of the PFAS.” [D.E. 397] 7. Defendants, however, then take the extreme position that no evidence suggests that PFAS exposure in drinking water for human beings is “injurious to human health.” Id.

Having reviewed the record, the court is satisfied that whether PFAS exposure in drinking water for human beings is unsafe (i.e., dangerous) or toxic (i.e., poisonous) is more nuanced than the parties suggest. After all, drinking too much water that contains no PFAS can be unsafe, toxic, or fatal depending how quickly the person drinks the water, how much water the person drinks, and how often the person drinks the water. For now, the court is satisfied sufficient evidence in the record exists to find that some measurable level of PFAS exposure in drinking water for human beings is unsafe (i.e., dangerous) and some higher level of PFAS exposure in drinking water for

human beings is toxic (i.e., poisonous). In order to address class certification, however, the court need not draw those lines.

E.

Defendants move to exclude the testimony of Kimberly A. Gray, Ph.D. and Roger W. Griffith, P.E. and argue their opinions constitute improper speculation. See [D.E. 360] 2. As for Gray, defendants deny that tap water or water pipes in residences contain any bacteria and that Gray would need to see microbial studies in order to express this opinion. See [D.E. 360] 5. Defendants' insistence that bacteria or other microbes do not exist in common tap water or water pipes in residences is silly. One need not be a biologist to know that common tap water and water pipes in residences contain bacteria and other microbes. Gray's assumption that bacteria and other microbes are in tap water and water pipes in residences does not render her opinions unreliable. Moreover, Gray does not opine that certain strains of bacteria cause the development of biofilm, but simply that any combination of common bacteria and dead cells form biofilm over time. See [D.E. 336-26] 13. Furthermore, Gray's report explains why she did not need to conduct a microbial study in order to form these opinions. See id. at 13–15.

Next, defendants argue that Gray had no reason to believe that the pipes of putative class members would have calcium carbonate, a chemical necessary to form PFAS-absorbing "scale." [D.E. 360] 6. Gray, however, analyzed sludge found in water heaters, and she found "scale" while analyzing the sludge. See [D.E. 336-26] 14–15; [D.E. 360-1] 12–14. If Gray found scale while analyzing the sludge, and if calcium carbonate is necessary to form scale, then it logically follows that calcium carbonate was present in the water heaters from which Gray found the scale. Both Gray's analysis and her discussion of the relevant literature demonstrate that her methods were reliable.

Next, defendants cite alleged inconsistencies between Gray's testimony and the opinion of another of plaintiff's experts, Brien N. Gidlow, P.E. ("Gidlow"). See [D.E. 360] 6. Gidlow is a civil engineer, and he opined that he never found PFAS retention in residential pipes. See [D.E. 336-22] 4; [D.E. 343-34] 3-4. To the extent Gray reached an opinion different than Gidlow's opinion, defendants may raise such alleged inconsistencies on cross examination. The court denies defendants' motion to exclude Gray's testimony at this stage of the case.

As for Griffith, defendants argue that Griffith never "tested a single water heater in order to ascertain the level, if any, of sediment present in that water heater, or its percentage, if any, of PFAS." [D.E. 360] 8. Plaintiffs respond that Griffith's report tested sludge in water heaters and that defendants are factually incorrect. [D.E. 384] 17-20. In reply, defendants contend that the "sludge" Griffith measured was a liquid and not a solid that supposedly adhered to the internal surface of water heaters. See [D.E. 391] 4.

Griffith explains:

The terms sediment and scale are often used interchangeably. The consistency of the sediment varies depending on the degree of water hardness and type of debris present. When the sediment or scale has the consistency of a thick or viscous liquid, it is often referred to as sludge. Sediment can also have a hard, concrete-like consistency.

[D.E. 336-27] ¶ 38. Given that "any contamination that remains in the sediment can be reintroduced into the water stream," Griffith measured the sediment present in sludge to opine about the potential of hardened sediment to release PFAS contaminants into the water systems. Id. at ¶ 47. Griffith's analysis is not improper speculation. Instead, it constitutes Griffith's method of demonstrating how contaminants deposited in the hardened sediment layer can contaminate water flowing out of hot water heaters.

Next, defendants argue that Griffith's opinion that no method can completely remove sediment from residential water heaters is based on flawed scientific methodology. See [D.E. 360] 10. Griffith's opinion, however, that no decontamination protocols would completely remove potentially contaminated sediment from water heaters is permissible given his experience, training, and explanation. See [D.E. 336-27] ¶ 54. Although defendants may introduce evidence demonstrating that flushing can adequately decontaminate water heaters, Griffith's opinions are not overly speculative. The court denies defendants' motion to exclude Griffith's testimony at this stage of the case.

IV.

Plaintiffs move for class certification. See [D.E. 334]. A class action is "an exception to the usual rule that litigation is conducted by and on behalf of the individual named parties only." Comcast Corp. v. Behrend, 569 U.S. 27, 33 (2013) (quotation omitted). Rule 23 "does not set forth a mere pleading standard." Wal-Mart Stores, Inc. v. Dukes, 564 U.S. 338, 350 (2011). A party seeking class certification must establish by a preponderance of the evidence that the action complies with Rule 23. See Behrend, 569 U.S. at 33; Brown v. Nucor Corp., 785 F.3d 895, 931–32 (4th Cir. 2015) (Agee, J., dissenting) (collecting cases).

Federal Rule of Civil Procedure 23(a) provides that a plaintiff may bring a class action as a representative party if:

- (1) the class is so numerous that joinder of all members is impracticable;
- (2) there are questions of law or fact common to the class;
- (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class; and
- (4) the representative parties will fairly and adequately protect the interests of the class.

Fed. R. Civ. P. 23(a). These basic prerequisites are commonly referred to as numerosity,

commonality, typicality, and adequacy. To bring a class action, the proposed class representative must satisfy not only these requirements, but also one of the requirements from Federal Rule of Civil Procedure 23(b). See Fed. R. Civ. P. 23(b).

Plaintiffs seek to certify damages subclasses under Rule 23(b)(2) and Rule 23(b)(3). See Am. Consol. Class Action Compl. ¶ 185(a). A court may certify a class under Rule 23(b)(2) when “the party opposing the class has acted or refused to act on grounds that apply generally to the class, so that final injunctive relief or corresponding declaratory relief is appropriate respecting the class as a whole.” Fed. R. Civ. P. 23(b)(2). Rule 23(b)(2) has two requirements: (1) the party opposing the class must have acted, refused to act, or failed to perform a legal duty on grounds generally applicable to all class members, and (2) final relief of an injunctive nature or a corresponding declaratory nature, settling the legality of the behavior with respect to the class as a whole, must be appropriate. See Berry v. Schulman, 807 F.3d 600, 608, 611 (4th Cir. 2015); Thorn v. Jefferson-Pilot Life Ins. Co., 445 F.3d 311, 329–30 (4th Cir. 2006); Gaston v. LexisNexis Risk Sols., Inc., 483 F. Supp. 3d 318, 341 (W.D.N.C. 2020); R.I.L.-R v. Johnson, 80 F. Supp. 3d 164, 182 (D.D.C. 2015).

Under Rule 23(b)(3), a court may certify a class where the questions of law or fact common to class members predominate over any other questions affecting only individual members, and a class action is superior to other available methods for fairly and efficiently adjudicating the controversy. See Fed. R. Civ. P. 23(b)(3). The matters relevant under Rule 23(b)(3) include:

- (A) the class members’ interests in individually controlling the prosecution or defense of separate actions;
- (B) the extent and nature of any litigation concerning the controversy already begun by or against class members;
- (C) the desirability or undesirability of concentrating the litigation of the claims in the particular forum; and

(D) the likely difficulties in managing a class action.

Id. This four-factor list is nonexclusive. See Amchem Prods., Inc. v. Windsor, 521 U.S. 591, 615–16 (1997); Ortiz v. Fibreboard Corp., 527 U.S. 815, 844–45 (1999).

Rule 23(b)(3) requires a plaintiff to demonstrate predominance and superiority. See Gunnells v. Healthplan Servs., Inc., 348 F.3d 417, 424 (4th Cir. 2003) (“Rule 23(b)(3) class actions must meet predominance and superiority requirements not imposed on other kinds of class actions.”); see, e.g., Thorn, 445 F.3d at 321; Gregory v. Finova Capital Corp., 442 F.3d 188, 190 (4th Cir. 2006). The Supreme Court has called a Rule 23(b)(3) class action the “most adventuresome” type of class action because it allows for money judgments “binding all class members save those who affirmatively elect[] to be excluded.” Amchem Prods., Inc., 521 U.S. at 614.

A court should interpret Rule 23 to promote justice and judicial efficiency. See, e.g., Gunnells, 348 F.3d at 424. A court must ensure that class certification fosters justice and judicial efficiency. See id. Rule 23 requires a court to take a “close look,” Amchem Prods., Inc., 521 U.S. at 615 (quotation omitted), and engage in “rigorous analysis.” Gen. Tel. Co. of Sw. v. Falcon, 457 U.S. 147, 161 (1982); see Ortiz, 527 U.S. at 844–45; Amchem Prods., Inc., 521 U.S. at 622–25; Thorn, 445 F.3d at 318. Courts have broad, but not unlimited, discretion in deciding whether to certify a Rule 23(b) class. See Ortiz, 527 U.S. at 844–45; Amchem Prods., Inc., 521 U.S. at 622–25; Thorn, 445 F.3d at 317; Gunnells, 348 F.3d at 424.

At the class certification stage, a court may consider merits questions “to the extent—but only to the extent—that they are relevant to determining whether the Rule 23 prerequisites for class certification are satisfied.” Amgen Inc. v. Conn. Ret. Plans & Tr. Funds, 568 U.S. 455, 466 (2013); see Brown, 785 F.3d at 903 (same). Otherwise, “[a]n evaluation of the probable outcome on the merits is not properly part of the certification decision.” Amgen Inc., 568 U.S. at 466 (quotation

omitted); see Brown, 785 F.3d at 903. Generally, the persuasiveness of the class-wide evidence is for the jury. See Tyson Foods, Inc. v. Bouaphakeo, 577 U.S. 442, 459 (2016). If no reasonable juror could believe the class-wide evidence, then plaintiffs would lack common proof. See id.

A.

Plaintiffs propose certification of two classes: (1) a “public utility” class and (2) a “groundwater” class. Plaintiffs define these classes as property owners or renters whose property:

(1) is serviced by a public water utility servicing Bladen, Brunswick, Cumberland, New Hanover or Pender Counties that draws water from or obtains water drawn from the Cape Fear River downstream of Fayetteville Works; or

(2) receives drinking water from a groundwater source with quantifiable concentrations of any of the Fayetteville Works PFAS (“FW PFAS”) as defined in Exhibit A hereto.

[D.E. 334-1] 23–24. Plaintiffs also propose certification of four subclasses:

Owner-Occupier/Renter Damages Subclass: All Class Members who are currently owner-occupiers of residential property or currently rent residential property and have not yet installed both reverse osmosis filters and new water heaters on their property.

Purchaser Damages Subclass: All Class Members who paid for bottled water, water heaters, and/or reverse osmosis filters from 2017 to present.

Long-Time Property Owner Damages Subclass: All Class Members who purchased their residential property prior to June 2017 and have not installed both reverse osmosis filters and new water heaters.

Health Study Injunctive and Declaratory Relief Subclass: All Class Members who consent to participate in the epidemiological study.

Id. at 24. Plaintiffs propose Carey, Burris, and Nix to serve as class representatives and ask the court to appoint Cohen Milstein Sellers & Toll PLLC and Susman Godfrey LLP as Co-Lead Class Counsel. Defendants oppose the certification of both classes as well as the four subclasses. See, e.g., [D.E. 342].

Rule 23 “contains an implicit threshold requirement that the members of a proposed class be readily identifiable.” EQT Prod. Co. v. Adair, 764 F.3d 347, 358 (4th Cir. 2014) (quotation omitted); see Hammond v. Powell, 462 F.2d 1053, 1055 (4th Cir. 1972); Soutter v. Equifax Info. Servs., LLC, 307 F.R.D. 183, 196 (E.D. Va. 2015). Courts often refer to this requirement as the “ascertainability” requirement. See Adair, 764 F.3d at 358. In order to certify a class under Rule 23, a court must be able to “readily identify the class members in reference to objective criteria.” Id. Although plaintiffs “need not be able to identify every class member at the time of certification,” plaintiffs must demonstrate that class members will be identifiable “without extensive and individualized fact-finding or mini-trials.” Id. (quotation omitted).

Defendants contend that plaintiffs have failed to establish ascertainability because each individual property in this case would have to be individually assessed to determine the property’s subclass. See [D.E. 342] 16–17. Defendants also contend that plaintiffs have failed to define the term “quantifiable concentrations” of PFAS and that the “detection limit for any compound varies depending on which laboratory is doing the analysis and what analytical method is being used.” Id. at 16. Defendants also argue that extensive review of property records and financial evidence will be needed to determine ownership or rental of a property. See id. at 17; [D.E. 397] 2–3.

Plaintiffs respond that the public utilities have records of “customer names and addresses that identify every occupied property in the contaminated service area.” [D.E. 334-1] 25. Plaintiffs also note that under the NCDEQ Consent Order defendants continue to sample properties for the presence of PFAS, and plaintiffs propose using the methodology and instruments defendants use in their sampling under the NCDEQ Consent Order. See id. at 25–26. In reply, defendants cite Adair, where the Fourth Circuit noted the complexities of reviewing property records or financial evidence when ownership of a property was in flux. See Adair, 764 F.3d at 358–59.

The proposed damages subclasses apply only to “Class Members who are currently owner-occupiers of residential property or currently rent residential property” and those who “purchased their residential property prior to June 2017.” [D.E. 334-1] 12. Ascertaining current owners and renters, or requiring proof that a class member purchased his or her property before June 2017, will not require a fact-intensive inquiry like the one in Adair.¹ Moreover, even if a putative class member has to produce several documents or trace their ownership through several steps, “[t]he number of steps in the process and the time and effort required have no bearing on whether the individuals are or are not objectively ascertainable.” Soutter, 307 F.R.D. at 197 (quotation omitted); see Dunnigan v. Metro. Life Ins. Co., 214 F.R.D. 125, 136 (S.D.N.Y. 2003).

Members of the putative utility class are ascertainable. Plaintiffs define the putative utility class as “any owner or renter of residential property from February 1, 2015 to present that: (1) is serviced by a public water utility servicing Bladen, Brunswick, Cumberland, New Hanover or Pender Counties that draws water from or obtains water drawn from the Cape Fear River downstream of Fayetteville Works.” [D.E. 334-1] 25. Plaintiffs can use the records of customer names and addresses to ascertain putative class members. Therefore, the putative utility class meets the ascertainability requirement.

As for the ascertainability of the putative groundwater class, defendants argue that plaintiffs fail to specifically define “quantifiable concentrations” of PFAS or explain how to ascertain putative groundwater class members. See [D.E. 342] 16. Defendants also note that while plaintiffs define

¹ In Adair, the Fourth Circuit found ascertainability lacking regarding ownership of gas estates because ownership changed hands frequently and records of ownership were 20 years out of date. Adair, 764 F.3d at 358–59. The Fourth Circuit held that reliance on thousands of pages of local land records to determine who owned what gas estate and exactly when they owned it constituted a “significant administrative barrier to ascertaining the ownership classes.” Id. at 359.

the groundwater class to include exposure to a list of 41 “Fayetteville Works PFAS compounds” listed in [D.E. 385-2], the defendants’ tests under the NCDEQ Consent Order measure only for 12 “particular PFAS compounds.” [D.E. 397] 1.

Plaintiffs reply that they will exclusively rely on defendants’ testing records and methods, including the defendants’ definition of “quantifiable concentrations,” to determine members of the putative groundwater class. See [D.E. 334-1] 25–26; [D.E.385] 19. This method allows plaintiffs to ascertain putative groundwater class members exposed to the 12 PFAS compounds defendants measure in their testing. Of course, further sampling of these identified class members arguably would be needed in order to determine whether any of the other PFAS not included in the NCDEQ Consent Order testing are present in a putative class members’ ground water.² Such additional sampling, however, does not raise an ascertainability problem. Defendants’ testing already would have ascertained the putative groundwater class member. Thus, the proposed groundwater class is ascertainable.

The two proposed classes meet the threshold ascertainability requirement of Rule 23 class certification. Next, the court addresses Rule 23(a)’s requirements seriatim.

1.

As for numerosity under Rule 23(a)(1), “[t]here is no mechanical test for determining whether in a particular case the requirement of numerosity has been satisfied.” Kelley v. Norfolk & W. Ry., 584 F.2d 34, 35 (4th Cir. 1978) (per curiam). “The issue is one primarily for the District

² Although additional testing could find the other PFAS, such testing would not be necessary. If, as plaintiffs argue, any quantifiable concentration of FW PFAS necessitates replacement or repair of residential water systems (see, e.g., [D.E. 334-1] 35), then a measurable concentration of the 12 PFAS defendants currently test for under the NCDEQ Consent Order would appear to justify replacement or repair.

Court, to be resolved in the light of the facts and circumstances of the particular case.” Id.; see In re Zetia (Ezetimibe) Antitrust Litig., 7 F.4th 227, 234 (4th Cir. 2021); Holsey v. Armour & Co., 743 F.2d 199, 217 (4th Cir. 1984). Plaintiffs identify over 100,000 potential members of the putative classes. See [D.E. 334-1] 27. Defendants do not dispute that plaintiffs satisfy the numerosity requirement. The court finds that the proposed classes meet Rule 23(a)’s numerosity requirement.

2.

As for commonality under Rule 23(a)(2), “[c]ommonality requires the plaintiff to demonstrate that the class members have suffered the same injury.” Wal-Mart Stores, Inc., 564 U.S. at 349–50 (quotation omitted); see, e.g., Gen. Tel. Co. of Sw., 457 U.S. at 157; Adair, 764 F.3d at 360; Bruzek v. Husky Oil Operations Ltd., 520 F. Supp. 3d 1079, 1094 (W.D. Wis. 2021); Rowe v. E.I. DuPont De Nemours & Co., 262 F.R.D. 451, 456 (D.N.J. 2009); Haywood v. Barnes, 109 F.R.D. 568, 577 (E.D.N.C. 1986). Commonality requires more than showing that class members “have all suffered a violation of the same provision of law.” Wal-Mart Stores, Inc., 564 U.S. at 350. Instead, commonality requires that the class members’ claims “depend upon a common contention” whose resolution “will resolve an issue that is central to the validity of each one of the claims in one stroke.” Id. Thus, a common question under Rule 23(a)(2) is one likely to “generate common answers” class-wide. Id. (quotation and emphasis omitted); see Brown, 785 F.3d at 909. “A single common question will suffice” Adair, 764 F.3d at 360; see Wal-Mart Stores, Inc., 564 U.S. at 349; Sullivan v. Saint-Gobain Performance Plastics Corp., No. 5:16-cv-125, 2019 WL 8272995, at *11–12 (D. Vt. Aug. 23, 2019) (unpublished); Bentley v. Honeywell Int’l Inc., 223 F.R.D. 471, 480–82 (S.D. Ohio 2004).

The commonality requirement does not necessarily “require that all the questions of law and fact raised by the dispute be common, just that any dissimilarities between the claims do not impede

a common resolution.” Hooker v. Citadel Salisbury LLC, No. 1:21-cv-384, 2023 WL 3020967, at *4 (M.D.N.C. Apr. 20, 2023) (unpublished) (quotations omitted). “The commonality test is qualitative.” Id. “Quantitatively, almost by definition there will always be more individual . . . issues than common liability issues.” Gunnells, 348 F.3d at 429. “Qualitatively, however, liability issues may far exceed in complexity the more mundane individual damages issues.” Id. (cleaned up). A question is not common “if its resolution turns on a consideration of the individual circumstances of each class member.” Thorn, 445 F.3d at 319 (quotation omitted).

Plaintiffs argue that at least one of the following common questions of law and fact justify class certification:

- a. whether Defendants released FW PFAS;
- b. whether and for how long Defendants knew of the release of FW PFAS;
- c. whether FW PFAS have contaminated Class Members’ properties;
- d. whether Defendants owed and breached a duty of care to Plaintiffs by allowing FW PFAS to be released into the Cape Fear River and surrounding groundwater and air;
- e. whether Defendants owed and breached a duty of care to Plaintiffs and the Class to act reasonably to remediate, contain, and eliminate FW PFAS contamination before it injured Class Members’ properties;
- f. whether Defendants’ release of FW PFAS into Plaintiffs’ properties is an objectively unreasonable interference with Plaintiffs’ use and enjoyment of their properties;
- g. whether Defendants’ contamination of the Class Area with FW PFAS such that FW PFAS will continue to enter Plaintiffs’ properties is a continuing trespass;
- h. whether reverse osmosis filters and new water heaters are the appropriate remedy to restore Plaintiffs’ properties to a condition free from Defendants’ contamination; and
- i. whether reverse osmosis filters and new water heaters are the appropriate remedy to prevent future FW PFAS contamination caused by Defendants’ discharges.

[D.E. 334-1] 27–28. Defendants do not appear to challenge plaintiffs’ proposed common questions of law or fact, but instead focus on the typicality requirement under Rule 23(a)(3). See [D.E. 342] 42–43; Deiter v. Microsoft Corp., 436 F.3d 461, 466–67 (4th Cir. 2006) (noting the “typicality requirement goes to the heart of a representative parties’ ability to represent a class, particularly as it tends to merge with the commonality and adequacy-of-representation requirements”). The court finds that the proposed classes meet Rule 23(a)’s commonality requirement.

3.

As for typicality under Rule 23(a)(3), typicality focuses on whether “the claims of the representative parties [are] typical of the claims of the class.” Haywood, 109 F.R.D. at 578; see Amchem Prods., Inc., 521 U.S. at 613; Gen. Tel. Co. of Sw., 457 U.S. at 157 n.13; Deiter, 436 F.3d at 466. A claim is typical if it “it arises from the same event or practice or course of conduct that gives rise to the claims of other class members, and if his or her claims are based on the same legal theory.” Beattie v. CenturyTel, Inc., 511 F.3d 554, 561 (6th Cir. 2007) (quotation omitted); see Deiter, 436 F.3d at 466; Romero, 796 F. Supp. 2d at 714. The typicality requirement recognizes “the notion that as goes the claim of the named plaintiff, so go the claims of the class.” Deiter, 436 F.3d at 466 (quotation omitted); see Soutter, 498 F. App’x at 264–65; Broussard v. Meineke Disc. Muffler Shops, Inc., 155 F.3d 331, 340 (4th Cir. 1998). Although the named plaintiff’s claim does not have to be identical or perfectly aligned with absent members, “plaintiff’s claim cannot be so different from the claims of absent class members that their claims will not be advanced by plaintiff’s proof of his own individual claim.” Deiter, 436 F.3d at 466–67. The court analyzes defendants’ typicality challenges in turn.

Plaintiffs argue that their claims for negligence, private nuisance, and trespass “are typical of Class Members’ claims.” [D.E. 334-1] 30. Defendants respond that every cause of action, damage calculation, and affirmative defense requires individual assessments of class members’ property. [D.E. 342] 18–33. Specifically, defendants contend that inquiries into cause in fact, proximate cause, and damages all require individualized assessment of each plaintiffs’ property. See id. In support, defendants argue that “PFAS are ubiquitous throughout the Cape Fear River basin, including PFAS created by other parties through a wide variety of processes and uses.” Id. at 18.

Even if other sources of PFAS exist in the Cape Fear River, the court credits the reports of plaintiffs’ expert witnesses Albright, Dunklee, and Gidlow describing avenues of common causation. Albright described how Fayetteville Works allegedly discharged 89 million pounds of PFAS traceable to defendants into the water supply and discharged approximately four million pounds of PFAS traceable to defendants into the surrounding air. See [D.E. 336-8] ¶ 97. Albright and Dunklee opined that the PFAS produced at the Fayetteville Works contained a unique “chemical fingerprint” attributable to defendants stemming from defendants’ manufacturing process. See [D.E. 377-3] ¶ 31; [D.E. 336-8] ¶ 37. Gidlow measured the geographic reach of PFAS contamination attributable to defendants and opined that PFAS attributable to defendants has flowed into putative class members’ residences from the Brunswick County Northwest Water Treatment Plant and Cape Fear Public Utility Authority’s Seeny Water Treatment Plant. See [D.E. 336-22] ¶¶ 4, 10, 12, 58–59. Plaintiffs also have provided other potential sources of class-wide proof of causation, including defendants’ records and testing. See, e.g., [D.E. 336-15]; [D.E. 336-21] ¶ 72.

The question of causation for the proposed classes turns on the common question of whether defendants’ chemicals with their unique “chemical fingerprint” contaminated these public utility

sources and groundwater sources. See, e.g., Sullivan, 2019 WL 8272995, at *12. Defendants in their surreply introduced new evidence that four PFAS identified in the class certification motion may not be solely attributable to defendants. See [D.E. 397] 2–3; [D.E. 397-1]. This evidence, however, addresses a merits question common to the entire class. Thus, plaintiffs have proposed plausible methods of demonstrating class-wide causation in fact for their proposed classes.

In opposition, defendants cite Farrar & Farrar Dairy, Inc. v. Miller-St. Nazianz, Inc., 254 F.R.D. 68, 74 (E.D.N.C. 2008). In Farrar, the silage bags at issue were “extremely sensitive, and numerous things can cause silage bags to fail, including commonplace forces and events.” Id. Unlike Farrar, defendants’ PFAS chemicals have a “chemical fingerprint” that provides a method to trace causation. Defendants also cite Reilly v. Gould, Inc., 965 F. Supp. 588, 603 (M.D. Pa. 1997). In Reilly, the court found that there was no method to reliably determine whether a class member’s lead exposure came from defendants’ process or from “other prevalent sources of lead emission.” Id. In contrast to Reilly, plaintiffs have provided a plausible method to determine the source of putative class members’ PFAS exposure. Thus, causation in fact does not defeat typicality.

ii.

Defendants argue that individual issues predominate the proximate causation analysis because plaintiffs “allege a series of separate acts or inactions by two companies taking place over forty years, involving different process lines, different products, different emissions, different exposure pathways, and different substances.” [D.E. 342] 19. Defendants assert that “differences in when the release [of PFAS] took place, the substance at issue, the technology employed, the state of the art, and which properties were impacted by which conduct are not mere formalities” but are decisive issues in the case. [D.E. 397] 4.

To the extent defendants contest the sufficiency of plaintiffs' proximate cause evidence, "courts may not consider" this merits factor "in ruling on a motion for class certification." Gunnells, 348 F.3d at 428. As for the argument about different emissions over time, it is unclear why such differences would necessitate different liability for "each property at issue." See [D.E. 397] 4. Plaintiffs are not seeking to stratify their subclasses based on exposure to a certain PFAS or based on when each plaintiff's property was exposed to PFAS, but instead included class members who either "currently" own or rent property or "who purchased their residential property prior to June 2017 and have not installed both reverse osmosis filters and new water heaters." [D.E. 334-1] 24. As for defendants' challenge to proximate cause for certain PFAS emissions, defendants have not demonstrated that some individual properties in the putative class could, for example, have been exposed only to a PFAS compound from decades ago but not from recent PFAS emissions. Although defendants may challenge proximate cause at a later time, "whether the class members can win on the merits of the issue common to the class is not a factor" under Rule 23. Daffin v. Ford Motor Co., 458 F.3d 549, 553 (6th Cir. 2006); see Amgen Inc., 568 U.S. at 466; Eisen v. Carlisle & Jacquelin, 417 U.S. 156, 177-78 (1974) ("We find nothing in either the language or history of Rule 23 that gives a court any authority to conduct a preliminary inquiry into the merits of a suit in order to determine whether it may be maintained as a class action."); Brown, 785 F.3d at 903 (same); Baffa v. Donaldson, Lufkin & Jenrette Sec. Corp., 222 F.3d 52, 58 (2d Cir. 2000) (same); Doctor v. Seaboard Coast Line R.R., 540 F.2d 699, 707 (4th Cir. 1976) (same), abrogated on other grounds by Gardner v. Westinghouse Broad. Co., 437 U.S. 478 (1978); 7AA Charles Allen Wright, et al., Wright & Miller Federal Practice and Procedure § 1785 (3d ed. 2005). Thus, the court rejects defendants' argument about proximate causation at this stage.

iii.

Defendants challenge the typicality of plaintiffs' nuisance claims. Defendants argue that under North Carolina law, proving "unreasonable interference" with property rights requires individual facts and inquiries into each property owner or renter's specific exposure to PFAS. See [D.E. 342] 31–32 ; [D.E. 397] 4–5. Plaintiffs respond that "nuisance may be proven by showing that any measurable amount of FW PFAS constitutes a nuisance, thereby requiring remediation, repair, and prevention." [D.E. 385] 15 (emphasis removed).

The alleged PFAS contamination of plaintiffs' water systems, and the need to replace water heaters or filters, is typical among the proposed classes. Several cases support this conclusion. For example, in Freeman v. Blue Ridge Paper Products, Inc., No. 2:08-CV-35, 2011 WL 13098808, at *1 (E.D. Tenn. Sept. 30, 2011) (unpublished), the court applied North Carolina law and analyzed whether to certify a putative class of property owners along a river alleging nuisance claims. Specifically, plaintiffs alleged that defendant injured them by "discharging certain waste from defendant's Canton, North Carolina paper mill into the Pigeon River." Id. The court held that "[a]n upper riparian landowner's unreasonable use of water quantity or diminution of its quality permits a lower riparian owner to maintain a civil action in nuisance or trespass to land." Id. at *4 (quotation omitted); see Biddix v. Henredon Furniture Indus., Inc., 76 N.C. App. 30, 35, 331 S.E.2d 717, 721 (1985). The Freeman court also found that defendant's discharge affected the water quality of the proposed class and satisfied the typicality requirement. See Freeman, 2011 WL 13098808, at *7.

Similarly, in Rudd v. Electrolux Corp., 982 F. Supp. 355, 369–70 (M.D.N.C. 1997), the court found that the "threat of continued trespass" from the chemical discharge "and the need to install monitoring wells" sufficed "to permit a jury to find nuisance." Although Rudd did not involve class certification, the alleged intrusion and damages in Rudd are similar to those in this case. As in Rudd,

plaintiffs uniformly allege a continuing trespass from PFAS and cite the need to install replacement filters or hot water heaters to abate the alleged nuisance. See, e.g., [D.E. 334-1] 42–44, 45–47. Thus, the court finds that plaintiffs’ nuisance claim does not defeat typicality.

iv.

Defendants argue that resolving defendants’ affirmative defenses require individual inquiry. See [D.E. 342] 32–33; [D.E. 397] 5–6. For example, defendants contend that determining statute of limitation defenses or other timeliness defenses “will necessarily vary from individual to individual.” [D.E. 342] 32. Plaintiffs respond that the public was first made aware of PFAS in 2017 and that only in the last few years were laboratories able to detect PFAS that defendants allegedly emitted. See [D.E. 385] 23; [D.E. 401-1] 7. As a result, plaintiffs argue that the putative class could not have been aware of their claims against defendants until 2017. See [D.E. 385] 23. As for the trespass and nuisance claims, plaintiffs also argue that they “do not seek to recover losses incurred prior to June 2017;” therefore, the statute of limitations or statute of repose are not implicated. See id.; see also [D.E. 336-17]; [D.E. 336-30] 6. Defendants reply and cite plaintiffs’ expert, Albright, who included a diagram in his report that scientists reported PFAS in the water as early as 2012. See [D.E. 336-8] 32.

Albright’s diagram does not identify which particular scientists were aware of PFAS in the water and to whom (if anyone) they reported the information. Moreover, plaintiffs contend that Albright’s report references “a group of researchers from North Carolina State University, the University of North Carolina at Charlotte, and several government agencies [who] published a paper showing elevated levels of PFAS in a drinking water treatment plant along the Cape Fear River.” [D.E. 334-1] 20. According to plaintiffs, the authors did not circulate these findings until 2017. See id.

Although defendants may challenge plaintiffs' theory about when the putative class could have become aware of the claims, this question is uniform among the putative class. Furthermore, whether plaintiffs prevail on their theory on the merits is "not a factor under Rule 23." Daffin, 458 F.3d at 553; see Amgen Inc., 568 U.S. at 466; Eisen, 417 U.S. at 177–78; Brown, 785 F.3d at 903; Baffa, 222 F.3d at 58; Doctor, 540 F.2d at 707. Thus, defendants' affirmative defenses do not defeat typicality.

v.

Defendants argue that questions of injury and damages require individual inquiry and lack typicality across the putative classes. See [D.E. 342] 23–30; [D.E. 397] 6–8. Defendants cite unique "physiochemical properties" of PFAS which require individualized analysis and measurement of each putative class members' property. [D.E. 342] 26. Defendants also argue that insufficient evidence supports plaintiffs' argument that mere presence of any PFAS in the water is injurious to human health in such a way to necessitate class-wide replacement damages regardless of actual PFAS concentration. See [D.E. 397] 7.

The parties disagree about whether the presence in the water of a quantifiable concentration of PFAS alone, regardless of actual concentration, suffices to maintain the replacement damages plaintiffs seek. In support of plaintiffs' position, plaintiffs cite evidence that defendants allegedly were aware that a quantifiable concentration of PFAS in the water could injure human beings. See [D.E. 336-19] 5–6. Plaintiffs also cite expert testimony that measurable amounts of PFAS in water systems pose a risk to humans. See [D.E. 336-26] ¶¶ 1–3; [D.E. 336-27] ¶¶ 25–26. Plaintiffs also cite Gamble's opinion about the necessity of humans to use bottled water until the quantifiable concentrations of PFAS in a resident's water system is removed. See [D.E. 336-28] ¶¶ 28–29.

Defendants respond that risks to humans vary depending on the “amount and type of the PFAS.” [D.E. 397] 7. Defendants also claim that no evidence suggests that PFAS in the water is “injurious to human health.” Id.

As discussed, for purposes of class certification on the three claims at issue, the court need not draw the line between unsafe levels of PFAS and toxic levels of PFAS. Regardless of where that line is, plaintiffs’ claims still could necessitate replacement or repair of the compromised systems. Moreover, the three remaining claims do not involve personal injury in which toxicity to humans is relevant to causation. See [D.E. 385] 24.

Although questions of whether quantifiable concentrations of PFAS are unsafe or toxic to humans may be relevant to the remedy (e.g., “flushing” water systems versus full replacement), the court can resolve this potential merits issue through common proof. Furthermore, the outcome of this question is not relevant to class certification. See Amgen Inc., 568 U.S. at 466; Eisen, 417 U.S. at 177–78; Brown, 785 F.3d at 903; Daffin, 458 F.3d at 553; Baffa, 222 F.3d at 58; Doctor, 540 F.2d at 707.

Next, defendants cite multiple cases for the proposition that toxic emissions or contamination below minimums established by regulatory agencies do not constitute a legally-recognized injury. See, e.g., In re WildeWood Litig., 52 F.3d 499, 503 (4th Cir. 1995); Brooks v. E.I. du Pont de Nemours & Co., 944 F. Supp. 448, 449 (E.D.N.C. 1996). These cases, however, concerned emission of chemicals that government agencies had studied and regulated. For example, in Brooks, the court granted summary judgment to defendant because the plaintiffs “failed to allege sufficient past or present contamination in violation of the North Carolina groundwater guidelines.” Brooks, 944 F. Supp. at 450 (emphasis added). As for In re WildeWood Litigation, that case concerned the emission and treatment of trichloroethane, which the Pollution Control Authority of South Carolina

regulated. See In re WildeWood Litig., 52 F.3d at 501–03 (noting that the Pollution Control Authority had established regulations on proper treatment, control, and discharge of trichloroethane and that defendant was not negligent per se because they followed these regulations). Unlike in Brooks or In re WildeWood Litigation, defendants have not provided evidence that North Carolina regulatory agencies have determined a minimum safe amount of FW PFAS contamination or protocol to treat water contaminated with PFAS to a level with a safe amount of PFAS. Although the NCDEQ Consent Order requires measurement for certain PFAS and outlines methods for testing, it does not create a regulatory scheme establishing a minimum safe amount of exposure. See [D.E. 336-9] 21.³

As for defendants’ argument that flushing water heaters and systems is a preferable remedy, the argument recognizes a risk of contamination. See [D.E.397] 8. Moreover, to the extent defendants cite this alternative remedy as an effective, lower cost option to remedy damage to water systems, this proposal does not suffice to defeat class certification. “Rule 23 explicitly envisions class actions with . . . individualized damage determinations.” Gunnells, 348 F.3d at 428; see In re Aqueous Film-Forming Foams Prod. Liab. Litig., No. 2:18-MN-2873, 2021 WL 248471, at *4 (D.S.C. Jan. 25, 2021) (unpublished) (noting that individualized damage calculations did not defeat certification where plaintiffs’ claims arose from “the same alleged exposure to the same chemicals in the same geographical area”).

³ As noted, North Carolina has set the preliminary health goal for GenX of 140 ppt. See [D.E. 132-1] ¶¶ 22, 92. Health goals, however, are distinguishable from the regulations at issue in Brooks and In re WildeWood Litigation because health goals are “non-regulatory and non-enforceable.” State of North Carolina, GenX Frequently Asked Questions 5, <https://files.nc.gov/ncdeq/GenX/DEQ-GenX%20FAQ%2008212017%201.pdf> (last visited Oct. 4, 2023).

Although the court finds typicality regarding plaintiffs' proposed primary injury and damages, the court rejects plaintiffs' "in-the-alternative form of damages" of "diminution-in-value." See [D.E. 385] 22. First, plaintiffs do not adequately explain why they have proposed this damages calculation. Plaintiffs maintain that diminution in value is an alternative theory and that they primarily seek replacement costs. See id. Plaintiffs also argue, however, that the diminution-in-value remedy functions to rebut any claim "that the remediation and repair model is excessive." Id.

The problem with the diminution-in-value remedy stems from the lack of common proof of causation. Defendants note that plaintiffs' expert Sunding's model only averages loss over "130,000 different properties across five counties" and does not include "key property-specific variables." [D.E. 342] 28. Even if these shortcomings do not make Sunding's calculations or methods unreliable under Federal Rule of Evidence 702, these sweeping averages alone do not suffice to demonstrate common proof of causation for the diminution-in-value remedy. See id. Alleged contamination of water systems constitutes a concrete injury directly attributable to alleged PFAS contamination. Calculating a general dollar amount reflecting "unreasonable interference with the use and enjoyment of property" requires a far deeper individualized inquiry than Sunding's model captures. See Kent, 303 N.C. at 677, 281 S.E.2d at 45.

Outside of putting a dollar value on how PFAS contamination affects general enjoyment of a property, the extent of alleged PFAS contamination will affect a property's diminution in value in the market. The court credits the report of defendants' expert Jennifer Pitts, who opines that the alleged PFAS contamination would not affect each property uniformly. See [D.E. 342-2] 2. Especially because of the large geographic spread among putative class members, factors such as distance to urban hubs, local government influences, proximity to bodies of water, and myriad

economic and lifestyle influences produce significant regional and local variations. See id. at 16. Without assessing these factors at a more local level, Sunding's average alone cannot determine whether an alleged contamination alone would cause a diminution of property value.

In opposition, plaintiffs cite Ward v. Dixie National Life Insurance Co., 595 F.3d 164, 180 (4th Cir. 2010), and argue that common damages are allowed when plaintiffs provide a simple class-wide method for calculating such damages. In Ward, the Fourth Circuit held that the calculation of "the difference between the amount defendants should have paid . . . and the amount defendants actually paid" was sufficiently simple to allow for common damages. Id.

Sunding's method is not as simple as the method in Ward. Moreover, Sunding's calculation does not reflect common damages, but average damages. The adjustments up or down from this amount, and whether such adjustments were actually or proximately caused by PFAS, would require individualized inquiries not captured in Sunding's model or any other simple calculation.

If putative class members believe that unique characteristics of PFAS contamination on their property require such a diminution-in-value remedy, such individuals can opt out of a Rule 23(b)(3) class and pursue such damages individually. See, e.g., Beaulieu v. EQ Indus. Servs., Inc., No. 5:06-CV-400, 2009 WL 2208131, at *19 (E.D.N.C. July 22, 2009) (unpublished). The court does not grant certification for the alternative remedy of diminution of value.

4.

As for the fourth requirement under Rule 23(a)(4), "the representative parties [must] fairly and adequately protect the interests of the class." Fed. R. Civ. P. 23(a)(4). A "class representative must be part of the class and possess the same interest and suffer the same injury as the class members." Amchem Prods., Inc., 521 U.S. at 625–26 (quotation omitted); see In re Red Hat, Inc. Sec. Litig., 261 F.R.D. 83, 87 (E.D.N.C. 2009). The adequacy inquiry "serves to uncover conflicts

of interest between named parties and the class they seek to represent.” Amchem Prods., Inc., 521 U.S. at 625; see Sharp Farms v. Speaks, 917 F.3d 276, 295 (4th Cir. 2019); Beattie, 511 F.3d at 562. A conflict must be considered “fundamental” to defeat the adequacy requirement. See Dewey v. Volkswagen Aktiengesellschaft, 681 F.3d 170, 183–84 (3d Cir. 2012); Ward, 595 F.3d at 180; Gunnells, 348 F.3d at 430–31. “A conflict is not fundamental when . . . all class members share common objectives and the same factual and legal positions and have the same interest in establishing the liability of defendants.” Ward, 595 F.3d at 180 (quotation and alteration omitted); see Gunnells, 348 F.3d at 430–31. In assessing the representative’s adequacy, courts may consider several factors including “honesty, conscientiousness, and other affirmative personal qualities.” Shiring v. Tier Techs., Inc., 244 F.R.D. 307, 315 (E.D. Va. 2007) (quotation omitted); see In re Red Hat, 261 F.R.D. at 87.

Defendants raise several objections to plaintiffs’ proposed class representatives, including alleged conflicts of interests, alleged misrepresentations by proposed class representative Nix, and alleged atypicality of claims. See [D.E. 342] 37–44. As for alleged conflicts of interests, defendants argue that previous and current owners of property, tenants and landlords of properties, and injured and uninjured putative class members have irreconcilable conflicts of interest. See id. at 37–41. Plaintiffs respond that defendants’ alleged conflicts are merely hypothetical.

The alleged conflicts of interest largely concern plaintiffs’ alternative remedy for diminution of value. The court, however, declines to certify plaintiffs’ proposed class for that alternative remedy. Thus, defendants’ arguments concerning that alternative remedy prove nothing.

Defendants’ argument concerning the alleged conflict between injured versus non-injured putative class members misunderstands the scope of the amended complaint. The remaining claims in plaintiffs’ amended complaint do not involve personal injuries. Thus, whether a putative class

member claims to have been personally injured by defendants' PFAS is irrelevant to whether his or her property has been damaged. Moreover, the general rule against "claim splitting" does not apply in class actions. See Gunnells, 348 F.3d at 432. Therefore, plaintiffs' proposed class representatives are not in conflict with plaintiffs' proposed damages subclasses.

Next, defendants argue that the court should not permit Nix to serve as a class representative because Nix allegedly misrepresented his educational background on his LinkedIn account. See [D.E. 342] 41. Defendants do not attempt to connect Nix's alleged LinkedIn misrepresentation to the underlying merits of the case or attempt to argue that Nix has otherwise been dishonest in this litigation. Thus, Nix's alleged LinkedIn misrepresentation does not suffice to deny class certification. See, e.g., Pontones v. San Jose Rest. Inc., No. 5:18-CV-219, 2019 WL 5680347, at *7-8 (E.D.N.C. Oct. 31, 2019) (unpublished).

Defendants also argue that proposed class representatives each have atypical exposure to PFAS, property types, and damages. As for PFAS exposure, simply because the property of each proposed class representative had different levels of PFAS exposure does not make their claims atypical from the proposed class. Plaintiffs' theory in this case is that any PFAS exposure beyond the quantifiable threshold suffices to compromise a water heater or filtration system. See, e.g., [D.E. 385] 20. Therefore, regardless of the level of PFAS exposure beyond the quantifiable threshold, the putative class members share the "same factual and legal positions" and have "the same interest in establishing the liability of defendants." Ward, 595 F.3d at 180 (quotations omitted). Moreover, whether plaintiffs' theory regarding PFAS exposure is correct is a merits question and not a consideration under Rule 23(a)(4) of class representatives. See Amgen Inc., 568 U.S. at 466; Eisen, 417 U.S. at 177-78; Brown, 785 F.3d at 903; Daffin, 458 F.3d at 553; Baffa, 222 F.3d at 58; Doctor, 540 F.2d at 707.

Defendants attack the typicality of proposed class representatives' hot water heater damages. In support, defendants note that plaintiffs' "counsel paid to replace Victoria Carey's water heater in 2017," but Carey "has not replaced any other plumbing pipes, fixtures, or appliances in her home." [D.E. 342] 44. Defendants also note that "Marie Burris does not even know if her hot water heater has been replaced since she purchased her home in 2005." Id.

Defendants do not explain why these examples make the proposed representatives' claims atypical. Whether the alleged damage, trespass, or nuisance involves the hot water heaters, water filters, plumbing, or any other water system, the alleged underlying injury is sufficiently similar: quantifiable PFAS exposure in plaintiffs' water system. Cf. Amchem Prods., Inc., 521 U.S. at 625–26.

Next, defendants argue that the proposed class representatives do not rent their properties. Both property owners and rental putative class members allege injuries to their possessory interests in their property. Under North Carolina law, tenants have a possessory interest in property. See Kent, 303 N.C. at 679, 281 S.E.2d at 46 (holding that a tenant has a "a sufficient property interest to maintain a claim in nuisance"); Page v. Corvias Grp., LLC, No. 5:20-CV-336, 2021 WL 4163562, at *10 (E.D.N.C. Sept. 13, 2021) (unpublished) (same); Burn v. Lend Lease (US) Pub. P'ships LLC, No. 7:20-CV-174, 2021 WL 4164685, at *10 (E.D.N.C. Sept. 13 2021) (unpublished) (same). Although there are some differences between owners and renters, the fundamental issues and injuries alleged sufficiently overlap to justify class certification. Cf. Pontones, 2019 WL 5680347, at *7; Zelaya v. A+ Tires, Brakes, Lubes, & Mufflers, Inc., No. 5:13-CV-810, 2015 WL 5703569, at *5 (E.D.N.C. Sept. 28, 2015) (unpublished).

Defendants challenge proposed class representative Nix because he seeks to "recover damages to plumbing fixtures in the home that he no longer owns, despite the fact that no one has

ever told him the plumbing fixtures or appliances in the home were damaged by PFAS.” [D.E. 342] 44. Even if defendants are correct, Nix claims to have purchased bottled water at \$100 dollars a month and Nix’s claims are, at minimum, fairly representative of plaintiffs’ proposed bottled water damages subclass. See Am. Consol. Class Action Compl. ¶ 128. Thus, the court finds that plaintiffs’ proposed classes and damages subclasses, excluding the alternative diminution-in-value remedy, satisfy the requirements of Rule 23(a).

B.

Next, the court addresses whether the first three subclasses meet the requirements for certification under Rule 23(b)(3). Defendants argue that class treatment is not the superior method of adjudication because of the alleged difficulties in managing such an action, the superiority of individual suits, and the preferability of ongoing NCDEQ regulatory action in resolving PFAS disputes. See [D.E. 342] 34–37. Plaintiffs respond that the relatively small potential recovery for each putative class member makes individual suits impractical. See [D.E. 385] 24–25. Plaintiffs also argue that the NCDEQ Consent Order does not remedy plaintiffs’ alleged injuries. See id. at 25.

As for the superiority requirement, plaintiffs must demonstrate that proceeding as a class “is superior to other available methods for fairly and efficiently adjudicating the controversy.” Fed. R. Civ. P. 23(b)(3); see Thorn, 445 F.3d at 319; Lienhart v. Dryvit Sys., Inc., 255 F.3d 138, 147–49 (4th Cir. 2001). In assessing superiority, a court should consider: (1) the class members’ interests in individually controlling the prosecution or defense of separate actions; (2) the extent and nature of any litigation concerning the controversy already begun by or against class members; (3) the desirability or undesirability of concentrating the litigation of the claims in the particular forum; and (4) the likely difficulties in managing a class action. See Fed. R. Civ. P. 23(b)(3); Thorn, 445 F.3d

at 319; Krakauer v. Dish Network L.L.C., 311 F.R.D. 384, 400 (M.D.N.C. 2015), aff'd, 925 F.3d 643 (4th Cir. 2019). A court also should consider “whether Rule 23 is sufficiently effective to justify the expenditure of the judicial time and energy that is necessary to adjudicate a class action and to assume the risk of prejudice to the rights of those who are not directly before the court.” Stillmock v. Weis Mkts., Inc., 385 F. App’x 267, 274 (4th Cir. 2010) (per curiam) (unpublished) (quotation omitted); see Wolin v. Jaguar Land Rover N. Am., LLC, 617 F.3d 1168, 1175 (9th Cir. 2010); 7AA Charles Allen Wright, et al., Wright & Miller Federal Practice and Procedure § 1779 (3d ed. 2005).

As for the first and second factors (i.e., individual control and other litigation), defendants claim that the pending consolidated action in Dew v. E.I. DuPont de Nemours & Co., Nos. 5:18-CV-73, 5:20-CV-208 (E.D.N.C. Feb. 21, 2018), demonstrates that plaintiffs possess “clearly potentially valuable claims that individual property owners have an interest in pursuing—and are pursuing—independently.” [D.E. 342] 34. In support, defendants contend that the Dew action has 1,649 plaintiffs. See [D.E. 397] 9. Given that the putative class in this case has potentially over 100,000 members, the Dew action represents approximately 1% of putative class members. See [D.E. 334-1] 27.

Even if the Dew action demonstrates that prosecuting claims individually is possible, individual claims in this case are not preferable. Plaintiffs in this case filed suit before the individuals in Dew, and this first-filed action is the “superior vehicle” for resolving such claims. See Blair v. Equifax Check Servs., Inc., 181 F.3d 832, 838 (7th Cir. 1999) cf. In re Camp Lejeune Water Litig., No. 7:23-CV-897, 2023 WL 6053054, at *5 (E.D.N.C. Sept. 15, 2023) (unpublished) (discussing the interplay between the first-to-file rule and the appointment of interim class counsel under Federal Rule of Civil Procedure 23(g)). Moreover, most putative class members have potential damages ranging from \$3,980 for replacement water filtering, \$1,818.15 for hot water

heater replacement, and \$405 a year for purchasing replacement water bottles. See [D.E. 336-28] ¶¶ 46–47, 49. Such relatively small individual damages, even if consolidated, are minimal when compared to the time and expense needed to pursue individual recovery.

Defendants also cite the NCDEQ Consent Order and argue that this administrative approach serves as a preferable alternative to a class action. See [D.E. 397] 9. The NCDEQ Consent Order, however, specifically excludes the claims of plaintiffs in this case. See [D.E. 336-32] ¶ 36. Moreover, defendants have not demonstrated how plaintiffs could present their private-law claims to NCDEQ and receive relief. Because the NCDEQ Consent Order does not and cannot resolve the private-law claims of the putative class, the court rejects defendants' arguments regarding the NCDEQ Consent Order. Thus, the court finds that the first and second factors favor certification.

As for the desirability of concentrating the litigation in the Eastern District of North Carolina, the parties agree that this court is the proper forum for this class action. The alleged torts occurred within the Eastern District of North Carolina, and plaintiffs and much of the relevant evidence are located within the district. See [D.E. 334-1] 51. The court finds that the third factor favors certification.

As for the likely difficulties in managing a class action, defendants argue that a class action in this case would be difficult to manage because of difficulties of common proof under Rule 23(a) and because plaintiffs are pursuing an “immature tort.” See [D.E. 397] 10. The court disagrees. As discussed, the question of PFAS exposure, liability, and damages can be readily tried with class-wide evidence and produce class-wide answers.

The cases that defendants cite in opposition are distinguishable. For example, Castano v. American Tobacco Co., 84 F.3d 734, 741 (5th Cir. 1996), and In re Rhone-Poulenc Rorer, Inc., 51 F.3d 1293, 1296 (7th Cir. 1995), involved sprawling, multi-state classes with overlapping state

regulations and law applying across proposed classes. Likewise, individual issues predominated in Emig v. American Tobacco Co., 184 F.R.D. 379, 394 (D. Kan. 1998), because plaintiffs could not demonstrate through common proof in which state or states plaintiffs allegedly became addicted to nicotine. In contrast, the putative class members in this case all reside in North Carolina, allegedly were damaged in North Carolina, and North Carolina law applies.

Plaintiffs have demonstrated compliance with Rule 23(b)(3). Thus, the court grants plaintiffs' motion for class certification and certification of the three damages subclasses for: (1) Owner-Occupier/Renter Damages Subclass; (2) Purchaser Damages Subclass; and (3) Long-Time Property Owner Damages Subclass.

C.

Next, the court discusses whether the fourth subclass meets the requirements for certification under Rule 23(b)(2). Cf. [D.E. 410-1]. Rule 23(b)(2) authorizes class treatment where "the party opposing the class has acted or refused to act on grounds that apply generally to the class, so that final injunctive relief or corresponding declaratory relief is appropriate respecting the class as a whole." Fed. R. Civ. P. 23(b)(2). Certification under Rule 23(b) is appropriate "only when a single injunction or declaratory judgment would provide relief to each member of the class." Wal-Mart Stores, Inc., 564 U.S. at 360.

In plaintiffs' amended complaint, plaintiffs request:

funding of an epidemiological study to investigate the full scope of the health impact of GenX and other PFASs on the affected population, and establishment of medical monitoring to provide health care and other appropriate services to Class members for a period of time deemed appropriate by the Court.

Am. Consol. Class Action Compl. ¶ 185. Before plaintiffs filed their amended complaint, the court issued an order on April 19, 2019, holding that medical monitoring is not available as a matter of

North Carolina law. See [D.E. 109] 21. On September 24, 2020, the court reaffirmed its dismissal of plaintiffs' request for medical monitoring injunctive relief. See [D.E. 249] 5, 8–9. On June 26, 2023, the court again reaffirmed its views. See [D.E. 410] 1–2.

Plaintiffs request an epidemiological study and “science panel.” See [D.E. 334-1] 51–53. Plaintiffs' expert, Dr. Savitz, outlined the process for carrying out the proposed epidemiological study. See [D.E. 336-25] 17–20. Dr. Savitz proposes that this study, among other things, collect “baseline blood specimen to measure PFAS and clinical chemistry (cholesterol, uric acid, etc.),” “measure height and weight,” construct a “health history (with information on health care providers who diagnosed the condition),” measure “other health determinants (e.g., body mass index, tobacco use),” and record “social factors (e.g., ethnicity, socioeconomic status).” Id.

Dr. Alexander, a rebuttal witness for defendants, notes that there are significant methodological overlaps between medical monitoring and epidemiological studies. See [D.E. 379-3] 8. Although these overlapping methodologies “are not unique to medical monitoring,” the overlaps are significant. See id.

The methodological overlaps between medical monitoring and the proposed epidemiological study and “science panel” are materially indistinguishable. The court declines to recognize the proposed epidemiological study and “science panel” subclass because the proposed subclass conflicts with North Carolina law and Rule 23(b)(3). See In re E.I. DuPont de Nemours & Co. C-8 Pers. Injury Litig., No. 22-0305, 2022 WL 4149090, at *7 (6th Cir. Sept. 9, 2022) (unpublished) (a “research class” fails to meet the requirement of Rule 23(b)(2) that an injunction must provide relief to each member of the class; even if a plaintiff's “research class” can ask a “common question—whether exposure to PFAS is sufficiently harmful to warrant medical monitoring. . . . [T]hat question having a common answer seems highly suspect.” (emphasis removed)); see also

[D.E. 410-1] 1–2; [D.E. 249] 5–9; [D.E. 109] 20–21.

In opposition, plaintiffs argue that the Sixth Circuit’s decision in DuPont is distinguishable and contend that the Sixth Circuit based its decision solely on the fact that the plaintiffs in that case sought to certify a nationwide class and had no method of determining which putative class members were exposed to which defendants’ PFAS. See [D.E. 401-1] 7–8. Not so. In declining to certify the proposed class, the Sixth Circuit observed that potential members of the epidemiological study would have been “exposed in different ways, in different amounts, and at different times” to PFAS. See In re E.I. DuPont de Nemours & Co. C-8 Pers. Injury Litig., 2022 WL 4149090, at *7 (quotation omitted). Although plaintiffs in this case do not seek a nationwide class, the potential differences in timing and amount of PFAS exposure among the over 100,000 putative members of the class raise materially indistinguishable concerns to those the Sixth Circuit expressed in DuPont. Accordingly, the court declines to certify plaintiffs’ requested Rule 23(b)(2) subclass for an epidemiological study and “science panel.”

Alternatively, plaintiffs argue that the court should certify a common issue class concerning an epidemiological study and “science panel” under Rule 23(c)(4)(A). The court will not use Rule 23(c)(4) to certify an issue which will simply recreate plaintiffs’ dismissed request for medical monitoring. Cf. Hooker, 2023 WL 3020967, at *15 (“Rule 23(c)(4) . . . speaks of certifying particular issues ‘when appropriate,’ and thus courts should use Rule 23(c)(4) only where resolution of the particular common issues would materially advance the disposition of the litigation as a whole.” (quotation and alteration omitted)). Thus, the court denies plaintiffs’ request to certify this common issue class under Rule 23(c)(4)(A).

In light of the court’s conclusions concerning plaintiffs’ proposed epidemiological study and “science panel” subclass, the court denies as moot defendants’ motion for partial judgment on the

pleadings. In that motion, defendants asked the court to dismiss plaintiffs' claim seeking the establishment of an epidemiological study and a "science panel." [D.E. 346].


D.

Ultimately, the court grants in part plaintiffs' motion for class certification, but excludes the proposed epidemiological study subclass. The court bases its conclusions on class determinations on the current record. The court reserves the right to decertify or modify the class in light of developments in the litigation. See Gen. Tel. Co. of the Sw., 457 U.S. at 160; Williams v. Martorello, 59 F.4th 68, 92 (4th Cir. 2023); Fed. R. Civ. P. 23(c)(1)(C).

V.

In sum, the court DENIES AS MOOT defendants' motion for judgment on the pleadings [D.E. 346] and DENIES defendants' motion to stay [D.E. 361]. The court also DENIES defendants' motions to exclude plaintiffs' expert witness testimony of Sunding, Gamble, Gray, and Griffith [D.E. 348, 356, 359]. The court GRANTS defendants' motion to exclude plaintiffs' expert witness testimony from Duncklee [D.E. 354] and from DeWitt and DeGrandchamp [D.E. 357]. The court GRANTS in part plaintiff's motion [D.E. 334] for class certification EXCLUDING the alternative diminution-in-value remedy and EXCLUDING the epidemiological study damages subclass. The court APPOINTS Cohen Milstein Sellers & Toll PLLC and Susman Godfrey LLP as co-lead class counsel. The parties shall meet and confer concerning future proceedings and submit a proposed schedule no later than November 1, 2023.

SO ORDERED. This 4 day of October, 2023.


JAMES C. DEVER III
United States District Judge